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VOL. 9, No. 1

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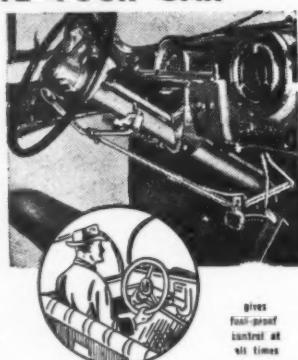
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## SOMETHING NEW HAS BEEN ADDED

C. H. McCLOY, Ph.D. \*

A research on exercising for strength, reported in 1953<sup>1</sup>, opens some new possibilities for corrective therapy. Hettinger and Muller experimented for eighteen months to discover how to develop strength more easily and effectively, and came up with some hard-to-believe conclusions—but the investigators seem to have proof of the validity of those conclusions. Briefly, they found that if the experimenting subject, using two-thirds of his maximum force, held his muscular contraction for as long as six seconds, *even only once a day*, that the exercised muscles would increase in strength as much as 5% per week up to the (probably) hereditary maximum strength of those muscles. Furthermore, they subsequently found that, once the maximum strength had been reached, *one* such maximum contraction *per week* would maintain it. Let us illustrate to be sure that this procedure is clear. Suppose a subject, standing erect with upper arm by the side, can flex his right forearm with a weight of thirty pounds in his hands ("curl a dumbbell"), this being the maximum weight that he can lift once in this manner; then if he were to hold twenty pounds and to flex the forearm to ninety degrees and hold it there for six seconds, and were to execute this exercise once a day, the strength of the forearm flexors of that arm would improve rapidly—perhaps as much as 5% per week. Of course, as the arm became stronger (for example, when he becomes strong enough to lift forty-five pounds) he would have to use a weight that was two-thirds of that new maximum weight (in this case, thirty pounds).

The theory behind this phenomenon is simple. It has long been known that when a muscle is held in strong contraction, the blood flow through the capillaries of that muscle is entirely cut off, leaving the muscle temporarily without a supply of blood-borne oxygen. It is thought that this condition of temporary anoxia (no oxygen) is the stimulus which causes this increase in strength.

We need, of course, to consider other objectives of exercise. The benefits of exercise are not solely to provide a stimulus to increase strength: there is the stimulus which provides for the increasing of endurance, both muscular endurance and circulorespiratory endurance<sup>2</sup>. There is also a stimulus to the glandular output of the adrenal cortex<sup>3</sup>, and probably of other

glands. All of this results in a feeling of general well being. There is also the stimulus to the improvement of the functions of the vital organs generally<sup>4</sup>. Hence, strength is not everything—but in the corrective therapy treatments of many kinds of patients, it is extremely important, as for example, (1) in the maintenance of strength in the muscles of post-operative patients, as those who have been operated on for the removal of the semilunar cartilages of the knee, or operated on for recurring dislocations of a shoulder where there is need to rapidly increase the strength of the adductors and the medial rotators of the upper arm;<sup>5</sup> (2) in the development of hypertrophy of the remaining unimpaired motor units of muscles partially paralyzed after poliomyelitis, to regain functional efficiency of the part; (3) in regaining strength after rheumatic fever, when the heart is not yet strong enough to stand the strain of vigorous general all-around exercise; or (4) in the exercising of the victims of some types of arthritis, where the DeLorme or other exercise routines are too painful to be endured. (Here, if a brief warm-up, *one* sustained contraction can do the job, this might be of great benefit to the patient.) This does not imply, of course, that if other forms of exercise can be tolerated, that they should not be used; they should. But it should be clear that if *strength* can be gained in the manner described by Hettinger and Muller, that we have *another* method of beneficial exercise that can be employed when indicated.

There is one more consideration: If a patient has a heart too weak to stand even the usual beginning routine of exercises, he can frequently stand *one contraction of one muscle group* with perhaps ten to fifteen minutes between each of such efforts. Suppose he has his right quadriceps exercised once at 10 a.m. Then at 10:10 he has the other quadriceps exercised. Then at

<sup>1</sup>Th. HETTINGER and A. E. MULLER, *Muskelleistung und Muskeltraining*, *Arbeitsphysiologie*, XV, No. 2 (October, 1953), pp. 116-126.

<sup>2</sup>C. H. McCLOY, *Endurance*, *The Physical Educator*, V, March, 1948.

<sup>3</sup>Based on unpublished studies by Dr. Max Goldheizer of New York.

<sup>4</sup>SHINKISHI HATAI, *On the Influence of Exercise on the Growth of Organs in the Albino Rat*, *Anatomical Record* IX (1915), pp. 647-665.

<sup>5</sup>C. H. McCLOY, *Philosophical Bases for Physical Education*, New York, F. S. Crofts and Co., 1940.

<sup>6</sup>J. M. TYLER, *Growth and Education*, Boston, Houghton Mifflin Co., 1907.

<sup>7</sup>ROBERT W. NEWMAN, *Dislocations of the Shoulder Joint and Infracture of the Humeral Head*, *Journal of the Iowa State Medical Society* (May, 1954), pp. 196-206.

\*Director of Research, Department of Physical Education, State Univ. of Iowa.

10:20 his right lower-leg flexors are exercised, and at 10:30 his left lower-leg flexors are contracted. All of the important muscle groups of his body can be covered in a few hours—and he can be taught to do the exercises by himself.

The reader's reaction to all of this will probably be that of most physical educators upon their first reading of this method: "It just doesn't make sense." The catch is, *it works!* This may be the reason why the weight lifter, trying to increase his strength, takes very heavy weights that he can barely lift; he *has to* lift them *slowly*—perhaps it takes about six seconds for the last lift. This may be why the repeated lifting of lighter weights does not develop strength nearly as much nor as rapidly.

At any rate, "something new has been added" to our theories regarding exercise. This new method does *not* supersede what we have long known and used, but it does add some possibilities that we have not known about before. The present author suggests that corrective therapy specialists experiment with patients prescribed and cleared for this type of activity using this new method in at least three ways: First, in heavy resistance exercises (with barbells, dumbbells, springs, etc.), why not *hold the last movement*, when about all of the motor units are fatigued enough to be involved, for from six to seven seconds? The same could be done on the last execution of a DeLorme 10 R.M. exercise. Second, why not work out exercise day's-orders for

those prescribed exercise routines to regain strength after operations or following illnesses, where the *sustained* contraction may give much more strength for the effort expended than would the usual types of rather gentle exercise? For example, in quadriceps setting, why not *hold* the last contraction and make it a near-maximal one, resisting the quadriceps by an (antagonistic) isometric contraction of the lower leg flexors? Third, why not work out a home morning-exercise day's-order for the normal person, which day's-order would be composed of about three or four minutes of exercise—to be used when on trips, on Pullmans, on planes, in hotels, or even at home when one (thinks he!) is too busy to "take a good work-out?" Granted that it will not be as useful or effective as the real thing, but it should do much to combat the progressive deterioration of strength of those who exercise almost not at all. The author's wake-up routine takes about four minutes to finish—and most of it is done in bed.

#### Conclusions

The research of Hettinger and Muller has tremendous significance for the entire field of physical conditioning and no attempt has been made in this article to exhaust all potential avenues for its future use. The simplicity of the technique and rapid results lends itself to a wide application wherever improvements in muscle strength alone is a prescribed objective.

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#### SPRINGFIELD ADOPTS TEN YEAR PLAN TO COMBAT DELINQUENCY

Dr. Donald C. Stone, President of Springfield College, has prepared a report which maps out a 10-year plan by the college to expand its facilities to train personnel for group leadership in problems of juvenile delinquency. The report lists the following areas of study as comprising the major section of the new course: juvenile delinquency control, character-building services, rehabilitation of the physically handicapped, vocational guidance, personnel administration and secondary school teaching. Plans call for an increase in student enrollment by the following estimated percentages: Character-building, juvenile delinquency prevention and recreation 210 per cent; health, rehabilitation, medical technology, and pre-medical, 134 per cent; elementary and secondary school teaching, 66 per cent; counseling and personnel administration, 122 per cent.

According to Dr. Stone's report, a major objective of the program is to "swell the flow of trained personnel into the nation's fourth largest industry-American philanthropy."

"Americans are contributing more than \$4,000,000,000 annually to charitable, gift-supported institutions," states Dr. Stone. "The donor, whether an individual or a corporation has the right to expect that such institutions are in the hands of skilled, thoroughly trained men and women."

The launching of a campaign to raise \$3,000,000 for modernization of the Springfield College campus and a broadening of the curriculum is the first step in the college's master plan.

#### MINERS DEVELOPING NEW HEALTH PLAN

The United Mine Owners Welfare and Retirement Fund, a \$100,000,000 enterprise, is sponsoring a new plan setting up a network of clinics in remote areas designed to improve medical care for coal miners and their families. Although the plan is sponsored by the fund, the proposed new clinics would be financed locally usually through co-operation of two or more local unions. It is expected that the plan would lessen, not increase, the load on the union's welfare fund because the health centers would be financed by contributions by the miners themselves in the form of regular payments taken out of their wages. Another objective of the plan is to reduce the need for hospitalization payments by the fund by treating patients at the new centers instead of referring them to private hospitals. The fund does not pay the cost of medical treatment in home or hospital and it is believed that the number of hospitalizations can be materially reduced through better care and a prepaid system near the miners' homes.

Originally opposed by private medicine when the fund set up a center at Russellton, Pa. a few years ago, the plan now has the support of such a prominent group as the American Medical Association which published an editorial praising the working relationship that has developed generally between the miners' union and the medical association.

In addition to encouragement of the health center plan, the U.M.W. fund has actively begun its own hospital construction program with the first hospital, at Middlesboro, Ky. slated to open on July 1.

# THE CONTRIBUTION OF CORRECTIVE THERAPY TO THE TOTAL MANAGEMENT PROGRAM FOR THE GERIATRIC PATIENT\*

JOHN EISELE DAVIS, Sc.D.\*\*

The problems of geriatrics are of increasing importance both within and without the Veterans Administration. At the end of last year there were 40,000 patients in the VA hospitals of 55 years or older. In 1970 it is estimated that the number of veterans over 65 years of age will be ten times as great as the present number. Since 1900 the population of the United States has doubled but the number of persons 45-64 years has tripled, while the number 65 years and older has quadrupled. In early 1952 there were 13 million men and women 65 years of age and over. This number is increasing at the rate of about 400,000 a year. Chronic disease is four times more prevalent in age groups over 65, than it is in those below this age.

The question as to what Corrective Therapy can contribute in the way of treatment and research to a total management program for the geriatric patient can be clarified to some extent, I believe, if we know what we mean by Corrective Therapy and what we understand as the connotations which have surrounded the term management of the patient.

Corrective therapy as you well know is a relatively young discipline. Various efforts have been made to define its area while at the same time allowing necessary freedom for future growth and development. It is probable that the total picture cannot be completed without certain indistinct border lines touching other areas and imposing responsibility for a more adequate understanding of the related disciplines. Since this specialization must find its eventual usefulness and validity from such interaction with other ancillary groups and day by day clinical experience in the hospital, its scope will inevitably change. There is, however, an unchanging central integrative theme namely that exercise and activity as offered by Corrective Therapy must subserve a very practical purpose in treatment and rehabilitation. In more technical language we may say that these modalities must be functional. We mean by this that they must help the patient get better in every sense of the word, that they must contribute to actual needs and not to his whims or fancies. The question of a man's needs, particularly an old person who has his own philosophy gathered from the wisdom of mature years is a rather involved matter, as we well know.

He is exposed to the repeated philosophy of modern geriatric rehabilitation expressed in the saying that, "as science and medicine have added years to life there follows the responsibility to add life to years." While the scientist has stressed the longitude of life, the aged person begins to appreciate its altitude and depth.

He sees around him many people in their sixties, seventies, and eighties and even nineties who in spite of fair physical health appear to have lost interest in life and to be unhappy. It is becoming evident that the basic problems of old age are far more than physical adjustment to the increasing years. The challenges to make life more interesting and worthwhile to enable them to live well as well as long confront the doctor, therapist and society at large. I believe this rationale is accepted here and the term management as used in such a progressive Center as this connotes the concept Adolf Meyer so often expressed as "the creation of the infectious environment as the ideal medium for the best care and motivation of the patient."

This viewpoint is not confined to the geriatric patient but has common characteristics which point to the immediate goals of rehabilitation therapy. Dr. Oren Timm details these as follows: "The first of these is to reawaken interest in other people, the second is to dispel fear of entering into relationships with other people and the third is to disrupt fantasy and to teach the patient how to find satisfaction in the real world." Corrective Therapy is both an activity and psychological approach for this distinct purpose, and I believe this philosophy is realistic for all types of illness-physical and mental.

Psychiatrists and psychologists have called attention to the personality characteristics of the aged person which combine a definite ambivalence of dependency and independence as these individuals attempt to hold on to the freedom of youth while at the same time claiming the protection of dependency as the reward of their years. I believe Corrective Therapy can supply a rationale of exercise and activity which will fill the needs in this situation. The area of dependency so coveted by these individuals can be preserved for them in the realization of the corrective therapy aims which stress working with rather than on the patient; such a mutual and collaborative effort in which the therapist and the patient carry out the activities together

\*Presented at Symposium on Geriatric Rehabilitation, Dayton V.A.C., Dayton, Ohio, September 19, 1953.

\*\*Chief, Corrective Therapy, Veterans Administration, Washington, D. C.

creates a feeling that the patient is adding to his own potentials and not taking something away. On the other hand, the desire of the patient for independence can be fostered by a plan of exercise and activity which provides health maintenance and enables the individual to retain control of his bodily processes enabling him to move about and care for his daily needs.

I am bringing up this point for the reason that Corrective Therapy to become a useful adjunct in the management of the geriatric patient and for any other patient for that matter, must be far more than a physical activity. It must be a psychological activity and specific enough to fit into a practical program of psychotherapy.

While stressing the individualization of the patient, Corrective Therapy as a discipline is most conscious of the group relationship as the basic medium of operation, as a milieu for social action, reaction and interaction. We as therapists are learning the profound yet practical significance of the group and the group ideals in treatment. Dr. Harvey Tompkins has well expressed this concept: "It is now clear, as a result of psychological investigation, that within organized groups of people there exists forces and interactions which determine the relationships of individuals to each other in the same group and to other groups. The group is perceived as a field of activity in which the role of the individual is determined by the aims, successes, and failures of the group as a whole, rather than by the goals, the knowledge, or the power inherent in the individual himself. In such a group situation, the feelings and self imagery of the individual are actually the reflections of the attitudes of the group which in themselves powerfully affect the beliefs, ideas, emotions, and motives of the individual members. No matter how skilled an individual may be, he can be effective only to the extent that others are willing to facilitate the use of the skill." The dynamics of exercise and activity operating in the group situation is opening a field of psychodynamics with many challenges and opportunities to the activity therapist who visualized his discipline in relationship to the cohesive power of the group.

So much for the general principles underlying Corrective Therapy which may be applied to all types of the ill and well including the geriatric person. Now a word as to specific programs. The Los Angeles Center on December 20, 1951, completed a study of 105 predominantly neurological patients prior to and following PMR Therapy. Fifty-three patients were over fifty-five years of age. The possibility of restoring all of them to the point of discharge from the hospital on a self-care basis did not exist. The immediate goal therefore was to remove as many as possible, physically and psychologically, from a dependency status to an inde-

pendent or semi-independent status with the possibility of eventual discharge from the hospital. The long range goal was to delay or prevent the necessity for future hospitalization of those discharged. A full day's activity program was planned for each patient with emphasis on encouraging him to do the maximum amount of which he was capable. Coupled with the exercise program in which Corrective Therapists were assigned a major role was an equally important phase-remotivation which was carried out by the doctor, nurse aide, therapists and other personnel. Such simple psychotherapeutic measures as reassurance, suggestion, encouragement and listening to family or emotional problems were employed.

Since this report under the title, "It Pays to Rehabilitate" is available I will not go into the statistics of the results except to say that a marked improvement was shown. While only 76 of the 105 patients completed therapy all of this number of 76 were discharged from the GM&S hospital either to the domiciliary unit or to the community, representing an annual saving of approximately \$440,000.

In discussing this problem with various representatives of the different medical disciplines, it seems to be the general viewpoint that what the geriatric person needs can be epitomized in two simple words; activity and interest or even in more exact terminology, interesting activity.

This is simply an application of an educational principle enunciated many years ago by John Dewey and I believe it is based on good common sense. Regardless of how we attempt to motivate the patient he will only respond favorably to those elements which interest him. We have tried in the past to create effort first and then as a secondary step add the invigorating charges of interest. I believe that all of us who have worked with patients in clinical situations realize the importance of motivating as well as directing an activity. I remember well my own experience at the VA Hospital, Perry Point, Maryland. Over a period of twenty years the hospital had organized many patient baseball teams, ward teams, league teams, all star teams. Before I left Perry Point, about seven years ago, hundreds of patients were still playing on these teams and while their average age was then fifty years, they insisted on continuing to play baseball, carrying out their league schedules. In spite of their age, there were no discernible ill effects from their participation in their strenuous activity. I tried to find out for my own satisfaction just what factors had accounted for this extraordinary participation in a strenuous competitive sport activity when just about all people of that age have given up baseball. I believe the answer was found in the inherent interest in an activity which not only allowed for an expression of happy childhood

experiences but allowed these patients to communicate with each other in a simple yet powerful language, the language of activity. Beyond this explanation is the desire to work out their problems in a simplified environment in which basic drives may both motivate and control behavior, an environment in which they can find understanding and be understood.

In geriatric rehabilitation I believe activities should assist in health maintenance. These activities should make the older person feel important and for this purpose should stress the acceptance of the individual by the group through mutual helpful activities. The personnel relationships may well express reassurance, kindness and the fostering of companionship. Corrective Therapy regimens should be pointed towards cooperative rather than competitive situations providing gentle activities avoiding overstress and fatigue. The atmosphere should avoid the taint of authoritarian

methods, being permissive and inviting.

In emphasizing this psychological aspect of the management and rehabilitation of the geriatric person, I realize that I have been far from specific. I do believe, however, that once we set out on these general objectives, the methods will suggest themselves in more detail. We must remember that old people are first of all people who have in their biological makeup the products of childhood, adolescence, middle age and maturity. Here we have in every sense of the word the whole man with all the facets of the age cycle. Let us not forget his potentials for continued growth and development. I believe that the future research in this area will involve studious exploration of the interest levels of the individual, the interests which come out of the organism which, as a result of mature experience, has many potentials for living happily, usefully and fully.

## A SHOULDER ABDUCTION SPLINT FOR WHEEL CHAIR PATIENTS

HOWARD ZIMMER\*

In many cases of shoulder disability due to neurological involvement, it is desirable to maintain the affected shoulder in abduction while the patient is confined to a wheel chair. In many cases, overhead slings have been tried for this purpose, but they have not been entirely successful. It is the purpose of this paper to describe a method of static splinting of the arm which will allow for varying degrees of shoulder abduction and rotation. The splint is easily fabricated from materials available on most orthopedic wards.

The chest and pelvic bands are removed from an adjustable-type aeroplane splint leaving only the arm portion, the slotted vertical bar from which the chest and pelvic bands have been removed, and the turn-buckle (Fig. 1). For attachment to a metal folding wheel chair, a piece of  $\frac{3}{4}$ " angle iron is cut the same length as the skirt guard of the chair and a 1" section is removed from the angle iron at each end to allow for pipe brackets which attach the angle iron to the chair. The brackets are made from stock, 2%" long,  $\frac{5}{8}$ " wide and  $\frac{1}{8}$ " thick, and are secured to the angle iron by bolts and wing nuts. A series of six or seven holes are drilled 1" apart from either end of the angle iron so that the splint may be moved forward or backward (Fig. 2).

The angle iron is clamped to the vertical bars of the wheel chair below the arm rest, just above the level of the skirt guard. The slotted vertical steel bar of the

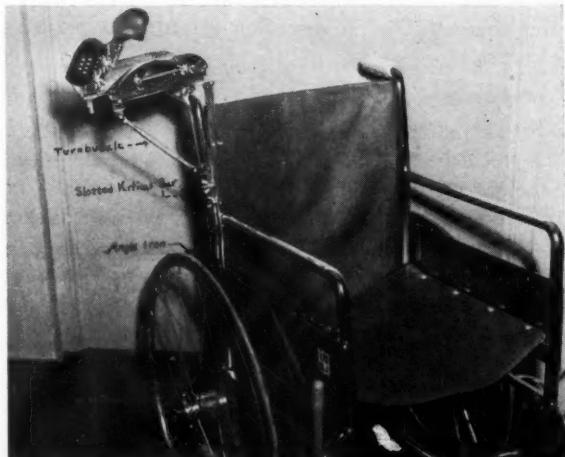


Figure 1. The splint attached to the wheel chair. Note position of angle iron just above the skirt guard.

aeroplane splint is bolted to the angle iron and a "C" clamp holds it to the arm rest of the chair at a higher level.

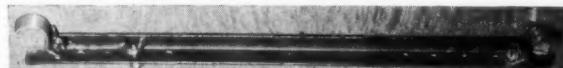


Figure 2. Angle iron showing removal of 1" section, drilled holes, and pipe brackets which secure it to wheel chair frame.

With the patient seated in the chair, the arm is placed in the splint and it is held there by the rounded contours of the device. Adjustments can easily be made for elevation, abduction and rotation.

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# A PROGRESSIVE APPROACH TO AMBULATION FOR PATIENTS WITH PERIPHERAL PARALYSIS

JOHN J. BALDINO\*

ARTHUR D. TAUBER\*

## Introduction

Weight-bearing and at least partial ambulation for metabolic and functional purposes are now well-accepted concepts in the treatment of the patient with paralysis of the lower extremities.<sup>1</sup> However, when an individual is ready to progress from prolonged bedrest to wheel chair the change of position very often produces syncope. When the individual progresses from the wheel chair to the upright position in braces, syncope also may result and the eventual adjustment to the upright position takes a considerable length of time.

Another problem frequently encountered by therapists is due to the fact that braces, which are usually ordered at the time that the patient is ready to begin ambulation or weight-bearing, take time to fabricate and this waiting period often retards the patient's progress.

The object of this paper is:

1. To describe a method of progressing the patient from bed to the beginning of ambulation training which will eliminate all of the unpleasant aspects produced by the stress of radical changes in position.
2. To describe two simple devices which provide weight-bearing opportunities for the patient who is ready to begin this experience but has not yet received braces.

## The Tilt Table

As early as is feasible the patient is placed on a tilt table.<sup>2</sup> (Fig. 1) From day to day the angle of the tilt table is increased as is the time the patient spends on it. Eventually the patient will be able to withstand long periods in the upright position without unpleasant effects. When a patient can withstand the 45° position for a half hour, he is then ready to be placed in a wheel chair.

For the quadriplegic who has little physical apparatus available for future ambulation, the method of standing him up on the tilt table periodically may be continued indefinitely.

## Weight-Bearing

When the paraplegic is accustomed to the upright

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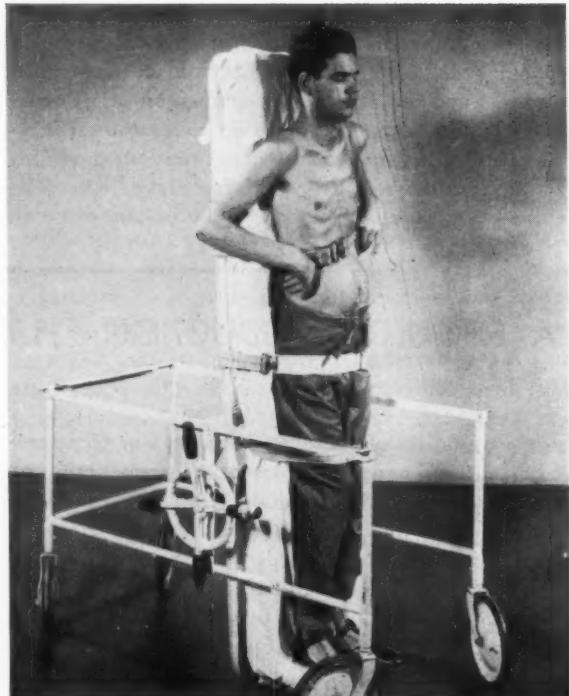


Figure 1

position on the tilt table (90° for a half hour), and while his braces are still being fabricated, he is then placed at the end of the parallel bars, being supported by three straps, which supply the universal three-point principle used in bracing.<sup>3</sup> (Fig. 2) A point of pressure is applied at the knees and two points of counter pressure are applied at the gluteal folds and heels.

This method may also be used for quadriplegics who have enough physical apparatus to hold themselves upright in the bars.

When the patient has become accustomed to the up-

<sup>1</sup>ABRAMSON, ARTHUR S., MD—*Bone Disturbances in Injuries to the Spinal Cord and Cauda Equina (Paraplegia) Their Prevention by Ambulation*. The Journal of Bone and Joint Surgery, Vol. 30-A, No. 4, pp. 982-987, Oct. 1948.

<sup>2</sup>ABRAMSON, ARTHUR S., MD, EBEL, ALFRED, MD—*Rehabilitation in the Management of Prolonged Illness*. (p. 924) Medical Clinics of North America, May 1953, Vol. 37, No. 3.

<sup>3</sup>ABRAMSON, ARTHUR, S., MD—*Principles of Bracing in the Rehabilitation of the Paraplegic*. Bulletin of the Hospital for Joint Diseases. Vol. X, No. 2, Oct. 1949.



Figure 2

right position in the parallel bars, knee cages with well fitting knee caps may be applied, thus eliminating the necessity for the straps. (Fig. 3) This will give the patient greater freedom to sway his hips, stretch tight muscles and develop a sense of balance. The knee cages



Figure 3

are nothing more than discarded braces in which the uprights below the calf band have been removed. Several sizes suitable for most cases can easily be made available.

At this stage the braces that have been ordered for the patient should be ready so that he can begin his ambulation.

#### SPRINGFIELD COLLEGE RECEIVES GRANT TO TRAIN REHABILITATION LEADERS

A federal teaching grant for the preparation of vocational rehabilitation counselors has been made to Springfield College. The grant will finance the new training on the graduate level with specialized programs in vocational rehabilitation, plus medical orientation, community organization and supervised clinical experience in appropriate agencies in the New England area.

Scholarships ranging from \$750 to a possible \$1600 per year will be made available for a selected number of qualified applicants. A number of graduate assistantships will also be available for full-time students. A Master's degree in Science or Education will be awarded upon successful completion of the academic and other requirements. For full-time students, the programs will extend over a twelve-month period, including a two month's summer internship. Part-time students will adjust their course load according to individual needs.

For admission to the new course, a Bachelor's degree, including 12 hours of Psychology or related subjects is required. Previous training in biological or physical sciences is desirable. Students who qualify may begin their studies in January, March or September.

#### THE NATION'S CONTRIBUTION TO FIGHTING DISEASE

An analysis of funds collected by the major philanthropies for fighting disease and disability shows that the nation provided a total of approximately \$132,000,000 for 1954 campaigns to the fifteen organizations most prominent in this area. Of this total, approximate percentage breakdowns show 41% going toward the fight against polio; 18% to tuberculosis; 15% to cancer; 8% to heart disease; 6% to crippled children and adults; 5% to cerebral palsy; 3% to muscular dystrophy; 1% to each of the following: blindness, arthritis, multiple sclerosis and mental health.

#### V.A. TESTING ISONIAZID FOR MULTIPLE SCLEROSIS

The Veterans Administration is planning to test the efficacy of isoniazid, one of the so-called "wonder drugs" used in the treatment of tuberculosis, in treating another scourge, multiple sclerosis. The decision came about as the result of an observation made at the Bronx V.A. Hospital when a multiple sclerosis victim, treated with isoniazid for another purpose, improved in his ability to speak. The drug was subsequently administered to thirty of the hospital's multiple sclerosis patients with promising results.

# BEHAVIORAL EFFECTS OF HYDROGYMNASIICS

ROBERT KRAMER, M.A., M.Ed.\*

ROBERT BAUER, Ph. D.\*\*

## *Introduction:*

The influences of hydrotherapy on hyperactive manifestations are known<sup>1</sup>. A temporary reduction of hyperactive behavior may be observed. However, the more typical passive hydrotherapeutic treatments often do not elicit a cooperative attitude from the patient and give him no opportunities for self-motivated activity. When treatment requires restraint, more therapists are needed in the enforcement of the routine prescription. This is time-consuming for both the patient and the therapists.

In this study it is assumed that if free swim therapy and hydrogymnastics can be introduced to the patient the following advantages may occur:<sup>2</sup>

- a. A free and voluntary expenditure of excess energy;
- b. A physical and social environment which is emotionally satisfying and refreshing;
- c. A situation usually conducive to release of tension and the production of relaxation;
- d. Cooperation may be more easily obtained from the patients;
- e. A saving of time for the patient and the therapist.

This particular study and subsequent studies are intended to demonstrate the value and specific behavioral effects of hydrogymnastics.

## *Experimental Design:*

Twenty-seven patients from two acute and intensive treatment wards were observed for a period of four weeks by aides on the ward for certain forms of behavior, incidents of violence, striking, throwing objects, biting, insulting, aggressive speech making, denunciations, and threats. They were also interviewed by the clinical psychologist on three different occasions for purposes of rating on an abbreviated form of the Multidimensional Scale for Rating Psychiatric Patients by Lorr. The patients were rated on the following six factors where changes might be expected:

- a. Retarded depression vs. manic excitement
- b. Compliance vs. resistiveness
- c. Activity level
- d. Melancholy agitation
- e. Motor disturbances
- f. Submissiveness vs. belligerence

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These ratings were made at two-week intervals. The first, at the beginning of the four-week period, the second at the end of a wait period of two weeks, and the beginning of the hydrogymnastic phase, and third, at the end of the hydrogymnastic phase. This permitted two kinds of simultaneous experimental controls in the observations. The twelve patients in the treatment group could not only be compared with the fifteen patients who did not receive treatment (parallel control), but also the treatment group patients could be compared with themselves prior to treatment (own-control). A t-test of significance of differences was applied to ratings on the MSRPP for each of the factors and for the sum of the factor scores, while reported incidents were also tabulated for possible changes during the treatment phase.

## *Experimental Procedure and Patient Reaction:*

The actual hydrogymnastic activities lasted for ten days, divided into two successive weeks from Monday to Friday inclusive. Treatment started on August 9, 1954 and was completed on August 22, 1954. Treatment activities took place in the swimming pool which is located on the ground floor of the acute and intensive treatment building<sup>3</sup>. The patients assembled at 10:50 A.M. every day in the dressing room which adjoins the actual hall in which the swimming pool is located. Five minutes time was used in preparation. The patients then took up positions around the pool in order to exercise for ten minutes. This was done to warm up and condition them for vigorous activities in the pool. At 11:05 the patients entered the showers and at 11:10 all patients were in water contact. This period in the pool lasted for 30 minutes until 11:40. This half hour was divided into two parts. The first period lasted ten minutes, in which organized games and exercises were performed. A rubberized volleyball was used for the games which consisted of modified water polo, tag and goal ball activities. Hydrogymnastics consisted of under water and surface water races, and certain aquatic conditioning exercises. The second part of the half hour period lasted for 20 minutes and

<sup>1</sup>REBEKAH WRIGHT, "Hydrotherapy in Mental Hospitals," *V.A. Pamphlet* 10-31, Jan. 24, 1950.

<sup>2</sup>ROBERT KRAMER, "Report on Swimming Therapy in a VA Hospital," *Journal of Physical and Mental Rehabilitation*, Sept.-Oct., 1951.

<sup>3</sup>ROBERT KRAMER, "An Experiment in Reinforcement of Neuropsychiatric Patients," *J.A.P.M.R.*, March-April, 1954, p. 45.

activities were left completely to the discretion of the patients. Very modified diving from the deep end of the pool was permitted, but the individual patients were out of the pool for only a few seconds at a time.

When the corrective therapist first contacted the patients he suggested to them the ten days of swim therapy activities in detail and asked their opinion. All accepted the proposed schedule and showed enthusiasm. Cooperation of the patients as well as their performance was good.

During the experiment four patients were rather disturbed and confused on different days. The corrective therapist talked to them individually before they entered the swimming pool. It appeared that during water contact and after leaving the pool, they became somewhat better organized. They still expressed delusional ideas and behaved peculiarly but they were much less aggressive toward their fellow patients and their behavior was socially appropriate. After each swim therapy session the corrective therapist asked each individual how he liked it and how he felt. All the answers were in the affirmative and ranged from, "Just as good as I felt before I went into the pool," to "Marvelous, excellent," or "I wish I could do that every day."

One patient on the third day refused at first to enter the pool. His excuse was that he was not in the mood to go swimming that day. After explanation of the need for continuity in the treatments the patient went into the pool and, "enjoyed it as much as ever," according to his own words.

Although there were seasonal respiratory infections observed among the other patients on the wards, only one out of the twelve patients belonging to the experimental group showed a slight nasal irritation. It lasted from the third to the fifth day of the experiment. On the sixth day, the patient claimed to have shaken off the cold which, in his case, usually lasts from two to three weeks. He never registered any abnormal temperature nor any other symptoms as described above. Previously during the time of his hospitalization he went through several periods of rather unpleasant respiratory difficulties.

From the control group consisting of 15 patients, four had minor throat irritations and slight colds.

All patients participating in the research study (the control group consisting of fifteen patients and the experimental group consisting of twelve patients) were referred by ward physicians on prescription basis. The corrective therapist informed the 27 patients that only half of the complete group would swim in the experiment. At that time the corrective therapist did not know himself which would be in the swim group. The randomization was done one hour before the actual swim therapy classes started and it was only the cor-

rective therapist who knew the patients in the experimental group. The clinical psychologist, administering the behavior ratings before, during, and after the swim therapy treatments, was not informed of the patients' group assignment. Of course it could not be avoided that during interviews individual patients mentioned to the clinical psychologist that they enjoyed the swim classes while some in the control group complained that they did not get to go into the swimming pool.

All patients were in the 25-50 age group. The mean age at the time of the experiment was 34.1 years and the average term of hospitalization was 2.3 years. They had no known organic or physical deficiencies and they were judged by the psychiatrist to be psychotic and in marginal to poor contact.

#### Results:

Observations made by ward personnel showed no changes in overt behavior associated with hyperactivity. There was no significant modification of verbal or physical aggressiveness and restlessness noted by the aides. The writers feel that these observations may have been unreliable due to the difficulty in teaching consistent and accurate methods of observation to the staff.

Of the six factors included in the rating scale, only one showed a significant change during the swim therapy period. Factor E, Melancholy Agitation, showed a significant difference between the changes occurring in the experimental group and the control group ( $t = 4.35$ ,  $p$  less than 0.01). The experimental group showed a large reduction in melancholy agitation during the swim phase whereas the control group showed no significant change. Most patients in the experimental group were more relaxed following swim therapy (9 out of 12). Many showed less anxiety and less abrupt changes in mood (6 out of 12). Some appeared more pleasant in mood and complained less regarding bodily ailments, real or otherwise (4 out of 12).

The difference between the experimental and control group indicated above was corroborated by comparison of the experimental group with itself, pre- and post-treatment. Melancholy agitation showed no change in the ratings previous to the swim phase but a large change during the swim phase ( $t = 4.7$ ,  $p$  less than 0.001).

Ten of the twelve experimental patients showed considerably more restraint in behavior following the swim therapy phase. This contributed to a positive trend in Factor A, Retarded Depression vs. Manic Excitement, which may have been augmented by correlation with Factor E, discussed above. However, this change was not significant at  $p$  of 0.05 level.

Though only one factor showed a significant change

alone, the sum of the six factors, used as a morbidity score, also showed a significantly different change during the swim phase in the experimental group as compared with the control group ( $t = 3.02$ ,  $p$  less than 0.01). While this change could be interpreted as a reduction in hyperactivity, it was unfortunately not corroborated by reports of personnel on the ward as indicated previously.

#### Conclusions:

The ward observation gave no evidence of a change in hyperactive behavior *per se*, neither was there a change in single aspects of hyperactivity noted on the ratings from interviews by the clinical psychologist. However, the change found was related more to attitude and feeling tones, an improvement in anxiety and a more relaxed, restrained, stable state. It may be inferred that such a change permits the patient better management of his feelings and impulses. This could be utilized in a program of resocialization for the patient. Therefore aggression, depression, and anxiety may be led to expression in more socially acceptable ways. This is suggested in the improvement found in

the factor-sum for the experimental group during the swim phase. Even though there may be no change in the volume of potential energy resulting from aggressive or destructive behavior, there may be here provided an outlet for such energy, which is at once emotionally satisfying, corrective and tranquilizing.

The psychologist feels that bias may have intruded into the ratings since the patients in the swim group expressed their enthusiasm and satisfaction in the program, while the control group members complained about being left out. In studies now under way other observers will be asked to rate patients and some objective type tests may be used. In this way bias can be minimized.

From this study a specific hypothesis for further research can be formulated. Hydrogymnastics significantly affects the factor of melancholy agitation. This should be tested again, as also should the hypothesis that hydrogymnastics will significantly reduce hyperactive behavior in general.

The writers are now conducting a study involving intensive observation and testing of a small number of individual patients given similar treatment.

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#### EUROPEAN SPORTS FESTIVALS FOR HANDICAPPED

During the past summer, three separate sports festivals for the disabled were held overseas; the 1954 International Wheelchair Olympics held at Stoke Mandeville Hospital in Aylesbury, England; the Fourth German Games for the Handicapped at Alfeld, Lower Saxony and the first Greek Games for the Disabled at Athens.

According to *THE WORLD VETERAN*, teams from fourteen nations competed in the Paralympics in England; Canada, the Netherlands, France, Germany, Austria, Belgium, Israel, Pakistan, Egypt, Finland, Yugoslavia, Scotland, and England being represented. The aim of the games is "to unite paralysed men and women from all parts of the world in an international sports movement." The first games were held in 1952 with only one overseas country participating; in 1953 the total was six. The teams participate in archery, netball, javelin-throwing, snooker, swimming, and table tennis events and a multitude of awards and prizes were distributed in true Olympic style as each team bearing the name of its country rolled up the avenue to the dais as the flags of the 14 nations and the World Veterans Federation fluttered in the breeze.

The Altfeld Games held from July 9 to 11 featured a program for men and women with all types of disabilities including blindness, paralysis, neurological involvements and amputations. A total of 900 disabled athletes participated in a program which included gymnastics, swimming, water polo, table tennis, races, high and low jumps, shot put, ball-throw, basketball, volleyball, netball, archery (for paraplegics) and fencing. No championships or records were noted as the games are primarily for the purpose of demonstration rather than competition.

In Athens, the first Greek Games for the Disabled were held at the Panathenian Stadium with an estimated 10,000 spectators in attendance.

#### REHAB PROGRAM FINDS JOBS FOR 4,400 HARD OF HEARING

The national program for vocational rehabilitation found employment for approximately 4,400 men and women who are either deaf or hard of hearing during the 1953-54 fiscal year according to an announcement by Miss Mary E. Switzer, Director of the Office of Vocational Rehabilitation, Department of Health, Education, and Welfare.

About one-fourth of the men and women with hearing loss rehabilitated into employment during the fiscal year are totally deaf. "The success of these men and women in a great variety of occupations," Miss Switzer said, "clearly shows the value of services to prepare disabled men and women for work and place them in suitable employment."

The Office of Vocational Rehabilitation has also reported that more than 1,500 blind vending stand operators and their 2,316 employees earned in excess of \$4.5 million during the 1953 fiscal year. This net income exceeds the previous year's all-time record earnings.

#### 150 FELLOWSHIPS FOR TEACHER TRAINEES

The national Woodrow Wilson fellowship program conducted by the Association of Graduate Schools within the American Association of Universities begins this fall its campaign for nominations for 150 teaching fellowships to be awarded this year. The one-year awards are financed by grants from graduate schools and by \$500,000 donations from the Carnegie Corporation of New York and the General Education Board. Nominations are accepted only from members of the academic profession and winners are selected by twelve regional committees in the U.S. and Canada. The Woodrow Wilson program was founded at Princeton University in 1945.

# FIVE STEPS THROUGH BRITISH REHABILITATION

SIDNEY L. TOABE\*

Throughout Great Britain one finds facilities covering all phases of rehabilitation treatment from onset of illness or injury through resettlement in home, community and industry. The cursory view of five distinct units presented here does not reflect completely the comprehensive state and voluntary programs for the handicapped, but it should give some idea of the steps a patient could pass through in carrying out this continuous process. There is, of course, a certain necessary overlapping between these units, but each is particularly specialized in its own way to meet the required needs of the disabled.

## *Birmingham Accident Hospital (215 beds)*

A hospital organized specifically for the treatment of all types of traumatic injuries. The Rehabilitation department plays an important role in the hospital's highly efficient medical organization.

### **PHYSICAL MEDICINE STAFF**

The staff is divided into three teams; each under the supervision of a surgeon with each team assigned a certain number of inpatients. Included as members of the teams are physiotherapists, occupational therapists, remedial gymnasts, social workers, nurses and orderlies. The actual staff of the Rehabilitation department consists of:

- 1 Rehabilitation Officer (a layman)
- 1 Deputy Rehabilitation Officer
- 4 Remedial Gymnasts
- 4 Occupational Therapists
- 4 Liaison Occupational Therapists
- 14 Physiotherapists

### **FACILITIES**

Treatment is carried out in the gymnasium, O.T. and P.T. rooms and on the wards. There is a large, pleasant lounge room for outpatients who have finished treatment and are awaiting ambulance service back to their homes.

### **PROGRAM**

The Rehabilitation department treats about 320 to 400 inpatients and outpatients a day with a turnover of approximately 36 patients a day. Outpatients referred by the various surgeons are interviewed by the Deputy Rehabilitation Officer who "screens" them for treatment. She also explains to them the objectives of

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their treatment. This may sound like an unusual procedure, but under the National Health Service, Departments of Physical Medicine have been overloaded with a tremendous number of patients referred from several medical sources. Undoubtedly, all the patients referred would benefit from the treatment, but in some hospitals it has become impossible for the department to allocate enough time to provide maximum treatment for the more severely disabled patients. Therefore in a country where there seems to be very few physical medicine specialists, someone has to evaluate a patient's need.

Patients may receive from a half-hour to four hours a day of:

- a. Passive and Individual Physiotherapy
- b. Progressive Group Exercises
- c. Remedial Games
- d. Occupational Therapy

All inpatients are given exercises in bed; ex. Specific and General Conditioning and Ambulation training. Usually, as soon as they are ambulant, they become outpatients. The great majority of patients undergoing treatment suffered fractures which occurred either at work or in automobile accidents.

## *Patshill Rehabilitation Centre—Wolverhampton (60 male inpatients)*

A rehabilitation centre to receive traumatically injured patients from the general hospital of a small industrial city. The majority of patients are coal miners or workers in heavy industry.

### **STAFF**

- 1 - Rehabilitation Officer (a Physiotherapist & Physical Educationist)
- 1 - Medical Physical Educationist
- 2 - Physiotherapists
- 1 - Occupational Therapist

### **FACILITIES**

The Centre occupies an old mansion in the country about eleven miles from the city of Wolverhampton. Treatment rooms, living quarters for patients and staff, a lounge and recreation room plus dining rooms are all located in the mansion. There is a 30' X 75' gymnasium built in the loft of the old barn. The grounds are extensive and space is available for long walks, bicycling and many forms of outdoor sports.

#### PROGRAM

Since the majority of patients have incurred severe fractures, exercise classes are divided into the "legs," "arms" and "spines" categories and their various grades in progression are classified "early," "intermediate" or "advanced" as the case may be.

The general daily program includes:

9:00-12:30 Passive Physiotherapy, Individual Exercise Class, Occupational Therapy, Work Therapy & Class Exercises

1:30- 4:00 Passive Physiotherapy, Individual Exercises (pulleys & weights), Games (recreational & remedial) and Bicycling

Evenings Films, Dancing and other quiet recreational activities

Patients have Wednesday afternoon passes to go home and they are free to have leaves every weekend.

Patients generally stay in the Centre from six weeks to three months. Overall reconditioning is an important objective of treatment because patients are expected to return to hard physical labor immediately after being discharged.

#### *Limb Fitting Unit, Queen Mary Hospital, Roehampton*

A unit organized specifically for the fitting of amputees with prostheses and for providing training in their use. The unit is operated on an outpatient basis but many patients who cannot travel are housed in the adjacent hospital.

#### STAFF

Limb Fitting Surgeons

Limb Fitters

Remedial Gymnasts

Technician for training arm amputees

#### PROGRAM

Most patients come to the unit from a general hospital where they have received instructions in stump exercises, stump care, and crutch walking. The lower extremity cases are fitted with pylons or double amputee "rockers" and are trained in their use plus receiving two weeks of conditioning exercises and games specially developed for amputees. Then they return home for a month to allow time for stump shrinkage before being fitted for a limb. After the fitting they return home or to work on their pylons until their prostheses are ready. Four months following amputation they receive their artificial limbs and undergo an additional week of training in their use.

The waiting period is much less for arm amputees and they are given a full week of training in the functioning of their limbs. Special appliances for the limb are developed to meet the individual's need on his job.

2. To discover by observation and tests, with medical advice:

#### COMMENT

The Limb Fitting Unit at Roehampton is one of several units for amputees throughout the country. There are also other types of specialized hospitals which concentrate on such disabilities as: paraplegia, poliomyelitis, neurosis, head injuries and geriatrics.

#### *Industrial Rehabilitation Unit, Edinburgh<sup>b</sup> (100 Rehabilitees)*

There are fourteen Industrial Rehabilitation Units throughout Great Britain, all under the Ministry of Labor. The objectives of Industrial Rehabilitation Units are:

1. To restore physical fitness and confidence in persons, who, although not in need of active medical treatment, are not fit for full employment.
  - a. Personal factors which are impeding satisfactory settlement in employment.
  - b. The types of employment most suitable for a particular individual that would lead to permanent resettlement.
3. To give advice to regional officers, appointment officers and managers of Government Training Centres (training in trades) about the effect of the disability on the individual's working capacity.

Rehabilitees are referred to the unit by Labor Exchanges, General Practitioners, Hospitals, Medical Rehabilitation Centres or by direct application. All rehabilitees supposedly have employment potentialities.

Many kinds of disabilities can be found among the rehabilitees such as ex-tuberculosis cases, chronic arthritics, remissions from psychoses and psychoneuroses, old fractures and epileptics. Many of these people, unaware of their capabilities, have been unemployed for many years.

#### STAFF

1. Centre Manager
2. Partime Medical Officer
3. Industrial Psychologist
4. Social Worker
5. Disablement Resettlement Officer  
(contact between the Unit & Industry)
6. Chief Occupational Supervisor
7. Six Occupational Instructors
8. Remedial Gymnast
9. Nurse

#### FACILITIES

1. Administrative Offices
2. Workshops
  - a. Engineering & Metal Work
  - b. Woodwork
  - c. Handicrafts (useful)
  - f. Gardening
3. Educational Classrooms

4. Small Auditorium (group discussions & films)
5. Remedial Gym & Outside Playing Fields
6. Gardens & Glass Houses
7. Medical Officers Examining Room

#### PROGRAM

"Rehabilitees" are progressively built up to an eight hour day to include both work and exercise. The emphasis in the gym is on general physical conditioning. However, a great many people come to the unit still in need of therapeutic treatment for their disabilities. At least two hours a day are devoted to exercise and games. Each patient's program in the gym is prescribed by the medical officer.

#### *Portland Training College for the Disabled (Mansfield)*

There are five training colleges for the disabled in Great Britain. All are voluntary organizations whose principal objective is to provide training in skilled employment for severely disabled persons so that they may become independent self supporting citizens. Students receive grants from the Ministry of Labour to attend the college for from six to twelve months depending on the course. Among the students can be found such major disabilities as post-tubercular, caridiacs, polios, former mental cases, congenital deformities, etc. Students are referred for training from Industrial Rehabilitation Units, Medical Rehabilitation Centres, Labor Exchanges or by direct application.

The following courses are available: Clerical, Mill Woodworking, Gardening, Watch Repairing and Precision Tool Making. The school has a very high rate of successful placement after training.

The maximum length of the program is twelve weeks. At the end of the first week, an initial case conference of the staff takes place to consider the doctor's medical report, the patient's social and work his-

tory and the first impressions of the staff plus test results. From this conference, the rehabilitee's "plan of stay" is developed. During the course of the ensuing weeks his case is reviewed several times and near the end of his stay, the staff conference with the patient decides on final recommendations for job placement or vocational retraining. All information is forwarded to the rehabilitee's Labor Exchange which follows through on the recommendations.

#### CONCLUSION

I have presented a rather general view of various phases of British Rehabilitation. It is certainly not the whole picture. One must consider the opportunities for economic independence available to disabled persons. Those persons able to undertake more active jobs may receive instruction in Government Training Centres in such trades as Bricklaying, Carpentry, Glazing, Automobile Mechanics, etc. Trade Unions have undertaken the obligation of accepting men trained in this manner. By the "Disabled Persons (Employment) Act, 1944," several forward steps were taken. A national employment register of disabled persons was set up. All business firms employing 20 persons or over have a 3% staff quota of qualified disabled persons drawn from the register. Furthermore the Act empowered the Minister of Labour to organize a government corporation to provide employment for those severely disabled persons who would be unable to find jobs in open employment. This has resulted in an organization known as "Remploy" which runs 90 small factories employing 6,000 disabled persons (who would otherwise be on the "scrapheap") in various aspects of suitable light manufacturing. There are also two government aided schemes whereby home bound people may engage in a productive occupation.

Truly, I think the British Rehabilitation program is a great social experiment in the democratic way of life.

#### NEW CHAPTER OFFICERS FOR 1955

<i>Chapter</i>	<i>President</i>	<i>Vice-President</i>	<i>Secretary-Treasurer</i>	<i>Other</i>
NEW ENGLAND	Kenneth Dening	George Heos	Edward Curran	
OHIO-BLUE GRASS	Earl Mason		John Murphy	George Jurcisin <sup>1</sup>
MID-ATLANTIC	Emil Weber	Vincent McGrath	Victor Meyer	
EASTERN STATES	Sam Boruchov	Robert Macaluso Arthur Schoengood	Julius Levin	Irving Glazer <sup>2</sup>

<sup>1</sup>President-Elect

<sup>2</sup>Director, Publications

## "From Other Journals"

N. MELVILLE ARNOTT, "The Abuse of Rest," *The Lancet*, 6825:1251-1252, June 19, 1954.

There is abundant evidence that none of the known effects of work can harm healthy tissue. On the contrary they are beneficial in that they develop and extend the range of adaptation of physiological mechanisms. In overdose rest is very toxic, even lethal. It should be prescribed only in clearly defined doses, not to be repeated without a further prescription. The mere act of immobilizing a man produces profound changes in metabolic function. Rest is essential for the acutely ill person, because bodily function is so disturbed that activity is distressing or even impossible. Many older hospitals enforce bed rest as the only modus operandi. The visitor to Continental clinics and to tropical hospitals cannot fail to be impressed by the extent to which patients get up and stroll around—to much advantage. Excess prescribing of rest and excess prescribing of drugs are millstones around the neck of the health service and the nation.

PJR

A. HILTUNEN ET AL., "Muscle Spasm in Manual Laborers," *Archives of Industrial Hygiene and Occupational Medicine*, 9:476-480, June, 1954.

Hard and painful muscles are common among manual laborers. The affection is commonest in muscles which are doing static work, such as the calf. The incidence of myalgia is related to the amount of physical work, mental tension, climatic change and exposure to cold. The site of myalgia will probably be determined by the work factor. It should be treated by the aid of good working methods, avoidance of static work, active relaxation, thermal applications and suitable gymnastics. The problem is one of personal hygiene rather than curative medicine.

PJR

W. S. TEGNER, "Physical Medicine," *Proceedings of the Royal Society of Medicine*, 47:389-394, June, 1954.

It is the duty of specialists in Physical Medicine to sift out the valuable forms of treatment from useless maneuvers which may be superficially popular. Massage may have a limited value, but it is expensive and time-consuming. It would be very difficult to find any scientific investigation into its effects. The controlled experiments of Millard and Wynn-Perry failed to substantiate certain claims made for the value of direct electrical current. Ionization is no longer considered important. There is little which can be said in support of the use of sinusoidal current in treatment. Paradic current cannot play more than an educative role in the guidance of the patient in how to use his own muscles. Ultraviolet radiation can be of help but is not specific or essential. Heat is probably the most valuable single physical agent in therapy. Ultrasonics seem to have been found wanting and allowed to die. Much of the present success of Physical Medicine is due to the fact that the specialists have thrown out outdated electrical equipment and massage couches, and ensured that patients take a leading active part in their own treatment. Space for activity is more important than apparatus. Training for recovery starts when the patient is in bed. Restoration of function is no matter of exercises done; the psyche of the patient must be stirred by suitable environment as provided by the group and training and education are part of our work. Activity and its prescription and guidance has become the main therapeutic part of our specialty.

PJR

JOHN A. SCHINDLER, "Present Therapy of Emotionally Induced Illness," *GP*, IX:47-52, April, 1954.

In a survey of 421 general practitioners it was reported that 31% of their practice dealt with emotional induced illness. Of these patients 86% received substitution therapy, that is, an explanation of an organic reason for the illness and symptoms, followed by measures ostensibly aimed at this substitute organic diagnosis. The diagnosis must not make the patient any sicker; it must be less serious than the disease the patient fears he has; it must explain all the symptoms without suggesting a need for further apprehension, and it must withstand prolongation of symptoms. About 7% were assured they were not organically ill and given sedative medicine. About 5% were given psychotherapy, and an estimated 2% were referred to psychiatrists. Substitution therapy is the best method at the disposal of the practicing physician. The greatest need in medicine today is an adequate rapid method of therapy of emotionally induced illness.

PJR

RUTH COOK ET AL., "The Meaning of 'Strength' in Physical Medicine," *Archives of Physical Medicine and Rehabilitation*, XXXV:586-589, September, 1954.

The word "strength" has a variety of meanings in the literature of Physical Medicine and needs to be clearly defined. Several terms now used as part or all of the word "strength" have a technical meaning of their own. Force is a push or pull which produces or stops or changes the velocity or the direction of motion. Tension is synonymous with force. Work is the result of a force causing a load to move and may be expressed as the product of the load by the distance through which the load is lifted. Power is the rate of doing work. It is determined by multiplying the load by the speed with which the load is lifted. Energy is the capacity for work. It is the product of the mass times the velocity squared.

PJR

GEORGE M. HASS, ARNOLD L. BROWN, JR., AND ARMIN F. SCHICK, "Isolation and Characterization of Human Myofibrils," *The Proceedings of the Institute of Medicine of Chicago*, 20:71-72, March 15, 1954.

Since the myofibril is considered to be the morphological and contractile unit of muscle, an understanding of its physiology is essential for a study of the pathology of muscular contraction. Addition of adenosinetriphosphate to dialyzed myofibrils resulted in their contraction only when magnesium was added before the ATP. Calcium did not have this effect. The processes of ATP splitting and contraction appear to be related only in so far as magnesium is available to induce contraction by linking the energy-producing reaction with the contractile elements of the myofibril.

PJR

CHARLES O. BECHTOL, "Grip Test," *Journal of Bone and Joint Surgery*, 36-A:820 et seq., July, 1954.

Study of the grip of the hand by use of a dynamometer with adjustable hand spacings showed that there is probably a maximum which can be obtained by an individual even after prolonged training. Circumferential measurements of the forearm do not correlate with grip because the musculature of the forearm consists largely of flexors and extensors of the fingers and wrist. The force of grip is largely dependent upon the musculature of the thenar eminence, as the limiting factor in grasp is the power of the thumb and thenar eminence to oppose the more powerful force of the four fingers. The hand can usually hold any object which the shoulder and arm muscles are powerful enough to lift. The maximum force is usually obtained at the 1.5" or 2" handle spacing. In order to increase force of grasp, the activity must require a forceful grip. The handling of heavy objects is not sufficient. The dominant hand may be as much as 30% stronger than the other hand; usually a difference of 5-10% is shown. There may be a variation in the grip during the day of 30%, but there is little variation from day to day if measured at the same time.

PJR

IRA H. RAPP, "Serratus Anterior Paralysis Treated by Transplantation of the Pectoralis Minor," *Journal of Bone and Joint Surgery*, 36-A:832-834, July, 1954.

Mechanically the serratus anterior holds the scapula to the chest wall while the arm is being raised and supplies rotatory motion to the scapula so that full abduction elevation of the arm may be accomplished. Paralysis of its nerve supply results in backward protusion of the vertebral border and inferior angle of the scapula, rotation of the scapula due to the weight of the arm, and marked limitation of abduction elevation of the arm with active muscle effort. Use of the pectoralis major, teres major and rhomboids as muscle transplants has given satisfactory results. In studying the regional anatomy it seemed logical to conclude that the pectoralis minor has a decided mechanical advantage for this use.

PJR

"Vitamin C Requirements of Human Adults," *The Medical Journal of Australia*, I:785-786, May 22, 1954.

The British Medical Research Council set up a committee in 1944 to study the need for vitamin C in the human. Additional work has been done by Krebs at Sheffield and by Crandon, Mikal and Landeau, of Boston. The evidence is that 30 milligrams of ascorbic acid per day should fill all requirements except possibly in cases of severe tissue stress. In surgical cases a close association of low ascorbic acid content of the blood and high wound complication rate was found. Kark reports that work in the far north of Canada failed to show that the stress of cold significantly increases ascorbic acid requirements.

PJR

N. J. BLOCKEY, "An Observation Concerning the Flexor Muscles During Recovery of Function After Dislocation of the Elbow," *Journal of Bone and Joint Surgery*, 36-A:833-840, July, 1954.

It is suggested that some reflex mechanism exists which inhibits motor muscles at a point just short of that which would be required to break down adhesions. The resolution of adhesions is uninfluenced by muscle power. As it proceeds, the joint regains its range of movement. The stronger the muscles when a full range is again permitted, the more normal the arm. The value of active exercise seems to lie in the retention of muscle bulk and strength during the progress of resolution of joint adhesion. This joint protection reflex seems to be initiated by receptors other than those of pain and is designed to limit movements which would otherwise damage healing tissues.

PJR

W. F. H. M. MOMAERTS, "The Process of Muscular Contraction," *Circulation Research*, II:1-3, January, 1954.

The trends of research on the nature of muscular contraction can be summarized as follows: (1) The purpose of metabolism is to generate adenosinetriphosphate as it is used. (2) The building stones of the contractile fibers are actin and myosin. (3) ATP can cause the contraction of actomyosin fibers and also cause various physical changes in less organized actomyosin systems. (4) ATP is broken down in the polymerization of actin in an amount exactly equivalent to the amount involved in one contraction.

PJR

## WE INTRODUCE

DR. EDWARD D. GREENWOOD

(Winner of the John E. Davis Award, 1954)



It probably came as no surprise to corrective therapists at the Cleveland Convention that Dr. Edward D. Greenwood of Topeka, Kans. was named third winner of the John E. Davis Award which is annually presented by the Association for Physical and Mental Rehabilitation for distinguished leadership and outstanding service in the field

of Physical Medicine and Rehabilitation. Dr. Greenwood has been intimately connected with our organization since its inception and has made significant contributions to the scientific and professional growth of the field of corrective therapy through his aid in helping to establish training courses for therapists at the V. A. Hospital in Topeka, assisting in editing the organization's professional journal and serving on the Advisory Board for several years.

There are few psychiatrists in this country who possess a more intimate knowledge of the use of physical education activities in the treatment or prevention of mental illness than does Dr. Greenwood. He was originally trained as a physical educator, receiving his B.S. and M.A. in this specialty at New York University

and he spent nearly ten years in the educational field before embarking on his medical career. He has continued to manifest considerable interest in problems of physical education and youth, having served as Director, Children's Department, Southard School from 1946-51, Member, Executive Commission, Kansas Society for Exceptional Children, 1946-48 and President, Kansas Council for Children, 1948-50. At present, in addition to his principal duties as Assistant to Dr. William C. Menninger at the Menninger Foundation, he serves as Consultant to the Department of Child Psychiatry at the Foundation, the Boys' Industrial School the Topeka State Hospital, Topeka School System, and the Winter Veterans Administration Hospital. He is a Member of the Leisure Time Activity Commission of the American Psychiatric Association; Consultant, Hospital Section, American Recreation Society, National Recreation Association; Consultant, Physical Medicine and Rehabilitation, Veterans Administration Councilor, American Association for Psychiatric Clinics for Children in addition to service on committees of innumerable state and national medical organizations.

Although Dr. Greenwood was unable to be present at Cleveland to receive the association award because of an official commitment on the program of a juvenile delinquency convention in Washington, members of the association trust that he will be able to attend the Boston meeting to renew old friendships and once again to personally give them the benefit of his wisdom and counsel.

# Editorials

## PHYSICAL FITNESS IN A DEMOCRACY

Today, for many people, the term "health" has taken on a negative quality by implying a mere freedom from disease. An over-reliance on medical science to offset ubiquitous microbes; a growing dependence on various food supplements, tonics, vitamins, immunizations and hospitalization or health insurance plans all point to a passive role for the factors in our lives which promote health. There is an inference today that we have no time for positive health—the best that can be done is that our scientists will continue to produce anti-biotics powerful enough to destroy most causes of disease and that we will be lucky enough to avoid contact with the rest. We will gulp down a vitamin capsule with the morning orange juice, keep our feet dry, play a few holes of golf three times each summer, and get at least one good night's sleep per week. This is about the gist of a health program adopted by millions of our fellow Americans. It is a most unusual occurrence when we discover people who associate health with the positive quality of physical fitness and vigorous well-being that were almost national fetishes at the turn of the century.

The common complaint today is that we have no free time for matters of positive health and opportunities within our jobs for gaining physical strength and endurance have long since disappeared as the indefatigable machine has replaced our dependence on mere human muscle. Where is the village blacksmith today? "The smith, a mighty man is he, with broad and sinewy hands," wrote the poet, but his counterpart today is perhaps stamping out parts in an automobile factory with electricity providing the power, a procedure which will hardly provide a formula for physical fitness.

If we adults are not physically fit and modern living has lessened the necessity for our being so, at least the youth of this country are still strong and vigorous, you may contend, but such is not the case according to such medical experts as Dr. Hans Kraus nor by many leaders in the field of Physical Education. In a recent interview reported by *The New York Times*, Dr. William Hughes, Director of the Health and Physical Education program at Temple University, voiced alarm over the poor physical condition of America's youth, declaring that the great mechanization of life in the United States was having a softening effect upon our youth to the point where it constitutes a real danger to the country. In another interview, Dr. Paul Hunsicker, Associate Professor of Phys-

ical Education at the University of Michigan, stated, "the most important single thing you can do for a child is to sensitize him to the need for physical conditioning and health" and he added that physical conditioning must be undertaken as part of a long-range program if it is to be effective.

It is most doubtful if negative health and debility on a large scale would be tolerated in a dictatorship where mass programs of calisthenic drills, gymnastics, and similar programs are promoted by the government to inculcate ideas of discipline and authority as well as to promote physical well-being. There is a high premium placed on physical strength, endurance, and bodily vigor in such a country as Russia where a popular song is reputedly called "Fizkultura Hurrah" (Hurrah for Physical Culture) and it may be contended that one aim of such a program is to stimulate the populace to the point wherein physical aggression becomes almost a symbol of its success.

In this country, the ebb and flow of progress is measured by changes within social institutions founded on the faith that in the long run, truth and reason will prevail in a free society. However, we should realize that a considerable segment of our culture, like some modern Lorelei, is drawing us into a greater and greater acceptance of creature comfort and complacency as desirable social objectives. And today we are on the brink of another Industrial Revolution, a process called Automation, which will begin with the advent of the automatic factory, staffed by electronic devices and atomic engines with man's physical function in industry reduced to mere button-pushing! It is the conviction of some that this will provide man with an even more comfortable life, shorter hours at his push-button job, and hours of added leisure. It is our contention that this type of progress cannot be deemed successful unless physical outlets, exercise, and activities, the factors of positive health, can be re-interjected into the daily lives of all our people.

This is not merely a question of retaining one's strength—the big chest and bulging biceps school of thought. The heart of the matter lies in the words of most of the early physical educators and many of our scientists—words which we have perhaps assailed as too platitudinous for our modern ears. The physiologist Schneider has discussed this matter in a few succinct phrases: "It is equally common to observe in a man of good physical condition, evidences of mental and bodily vigor, such as alertness, cheerfulness, high morale, bright eyes, elastic step, healthy complexion and ca-

pacity for arduous mental and physical work." This is a picture of the type of man whom we have always believed epitomized the American.

If our culture is to continue producing people with positive health assets within the spectre of Automation, its institutions which traditionally have safeguarded human welfare, must keep abreast of the times. This is the frontier of tomorrow and the philosophy of corrective therapy has a definite place in it.

#### THE INSTITUTE AT NEW YORK

The three-day conference on adapted physical education held at New York in December under the auspices of New York University's School of Education and the Association for Physical and Mental Rehabilitation was the first of what we hope will be a long and profitable series of such undertakings. Designed to

bring together corrective therapists and specialists in physical education for the handicapped for a mutual exchange of information relative to the two fields, the institute provided an interesting and stimulating program under the capable leadership of Dr. Raymond A. Weiss.

In this age of high specialization, it is noteworthy that the two groups spent little time during the institute attempting to achieve a semantic discrimination between these related fields and the program was primarily concerned with discussions concerning how the handicapped can best be served through the tools of physical education—either by augmenting a hospital program of corrective therapy or, within a school environment, by modifying the normal activity program to fit the needs of the disabled child. There is much to be gained by further meetings of this type.

## Research

### INVESTIGATIONS ON THE PHYSIOLOGICAL IMPORTANCE OF REGULATED RESPIRATION WITH MAXIMAL EXPIRATION\*

PROF. DR. D. MATEEF, DR. K. KIRSTEFF (SOFIA)

(Editor's Note: Despite the fact that some of the results of the research reported in this article are at variance with material contained in standard textbooks in the field of the physiology of exercise, this article is reprinted in the belief that it will stimulate interest in the important subject of regulated respiration.)

It is well known that the oxygen requirements of the working organs increases manyfold during physical exercises, training and contests. The activity of the respiratory and blood systems of the organism likewise increases. It has been proved, however, that despite increased activity of the respiratory system during physical work, there is in untrained subjects insufficient oxygen saturation of the blood. This is observed even in trained persons during the first minutes of work (Marshak).

Therefore, training athletes in regulated respiration is highly important. From a physiological point of view, most favorable and effective is rhythmical respiration, coordinated with the rhythm of the movements, with maximal expiration. The ground for this is the following:

The air left in the lungs in ordinary breathing is the residual and supplemental air which constitute the mean capacity of the lungs (about 2800, of which 1200 c.c. residual air and 1600 c.c. supplemental air on

an average). This air mixes with the inspired fresh air. On account of this the composition of alveolar air differs from that of inspired air. The ventilation coefficient, which is the ratio of the volume of inspired fresh air to the mean capacity in ordinary breathing is equal to  $350 : 2800 = 1 : 8$ .

The ventilation of the alveoli is more effective if the new inspiration is taken after maximal expiration. In this way the inspired fresh air (supplemental and tidal: 1950 c.c. in total) will mix with 1200 c.c. residual air. In this case the ventilation coefficient improves:  $1950 : 1200 = 1.6 : 1$ . It is obvious that the composition of alveolar air will change, the percentage of oxygen will rise and that of carbon dioxide will fall. The increased percentage of oxygen in alveolar air ensures a better oxygen saturation of the blood, which is very important in physical exercises and sports.

The object of our first investigation was to study the composition of alveolar air in rest during different types of respiration, namely:

- (1) Ordinary (with a tidal air of about 0.5 l.).
- (2) With maximal inspiration by highest mean capacity, that is to say, when thorax is in the position of maximal inspiration, the expiration being ordinary with tidal air of about 0.5 l.
- (3) With maximal expiration by lowest mean capacity, that is to say, when thorax is in the position of maximal expiration, the inspiration being ordinary with tidal air of about 0.5 l.

Throughout the experiments the subjects were instructed to keep the tidal air relatively constant during the three types of respiration.

\*Reprinted from *Studi Di Medicina E Chirurgia Dello Sport*, Anno VIII, Astino, 1954, pp. 315-321.

TABLE I

Type of Respiration	Alveolar Air					CO <sub>2</sub>	Total Amount c.c. per minute	R.Q.
	V <sub>o</sub>	% CO <sub>2</sub>	% O <sub>2</sub>	% CO <sub>2</sub> in expired air	% of oxygen intake			
Ordinary	5.96	6.23	13.43	3.27	3.66	190	214	0.89
Max. inspiration ordin. expiration	6.55	6.74	12.00	3.18	3.55	204	226	0.90
Max. expiration ordin. inspiration	7.26	5.36	14.98	3.43	3.44	243	248	1.00

The results of these experiments are shown in Table I.

These figures are average for 30 tests but the character of change is the same in each test.

The tests corroborate our supposition that the composition of alveolar air is most unfavorable during the second type of respiration, where the ventilation coefficient is most unfavorable. Conversely, the composition of alveolar air is improved during respiration with maximal expiration where the ventilation coefficient is most favorable. The oxygen partial pressure in alveolar air during respiration with maximal expiration is higher by about 12 mm Hg and that of carbon dioxide lower by about 9 mm Hg as compared to ordinary breathing.

We made further investigations with a view to ascertaining the effect of regulated respiration with

maximal expiration on the performance of physical work. The work was performed on a bicycle ergometer 1000 kg/m per minute.

The subjects tested reported that the work was performed with greater facility during respiration with maximal expiration. When the experiments were prolonged till exhaustion the achievement was 27 per cent higher when the work was performed with respiration with maximal expiration than when performed with ordinary breathing.

Measured work carried by respiration with maximal expiration is performed at a lower pulse rate. In our experiments the average pulse rate during work is 166.4 beats per minute when performed with ordinary breathing and 157.6 beats per minute when performed with respiration with maximal expiration.

We observe differences in pulse rate and blood pres-

#### K.K. JUNE 30, 1950

Type of Respiration	Minutes of Work	Pulse Rate	Blood Pressure
Ordinary	2	132	135/80
	3	136	170/80
	5	140	165/80
	7	140	165/80
With maximal expiration	8	132	160/80
	10	136	160/80
	11	140	155/80
	12	140	155/80
	13	136	165/80
With maximal inspiration without full expiration	15	152	150/75
	17	152	165/80
	18	140	165/80
Maximal expiration without full inspiration	20	140	145/75
	21	136	155/80
	22	144	150/80
	24	144	150/80
	25	144	160/80
Ordinary	27	148	160/80

#### I.R. JUNE 30, 1950

Type of Respiration	Minutes of Work	Pulse Rate	Blood Pressure
Respiration with maximal expiration	2	132	140/100
	5	140	150/100
	8	160	165/110
Ordinary respiration	9	180	165/110
	11	192	160/115
	13	192	
	15	236	165/110
Maximal inspiration without full expiration	17	228	165/110

STOPS ON ACCOUNT OF EXHAUSTION

sure whenever we change the type of respiration during one and the same experiment. Here we found that respiration with maximal expiration exerts a most favorable influence on the performance of work. Let us cite two protocols of these experiments. (p. 20)

The diminution of pulse rate and blood pressure during respiration with maximal expiration is especially pronounced in the protocols of K.K. In the experiments with I.R. a substitution of ordinary breathing for the regulated respiration with maximal expiration with which he works in the beginning produces immediately a sharp increase in pulse rate, which reaches highest level when for a second time the respiration is changed to the most unfavorable respiration with maximal inspiration and incomplete expiration.

In our further experiments we wished to ascertain whether it is possible to increase the oxygen supply of the organism during work and during rest in the intervals through a respiration with maximal expiration. We found that the oxygen supply of the organism during work was considerably increased through a respiration with maximal expiration.

Let us cite one of the protocols. (see below)

This table shows that there are considerable differences in oxygen intake and carbon dioxide output during the two types of respiration.

The improved oxygen supply of the organism during work through a respiration with maximal expiration has also a bearing on the amount of oxygen debt. The experiments with standard physical work of medium intensity (12 min. of work on a bicycle ergometer to a load of 100-1500 kg/min.) show that when the work is performed with regulated respiration with

maximal expiration the oxygen debt diminishes by about 25 per cent as compared to the oxygen debt after work performed with ordinary breathing.

The diminished oxygen debt during work performed with regulated respiration supplies the explanation to further series of investigations with Dr. V. Paraskova. It was found that, compared to ordinary breathing, the content of lactic acid in the blood after work was reduced by about 23 per cent on an average when the work was performed with regulated respiration.

We also made experiments on the bicycle ergometer closely resembling rounds in boxing. The subject worked altogether 9 minutes, one minute rest being given after every three minutes of work. At first the subject received no instructions as to his breathing. In the subsequent experiments he was given instruction for regulated respiration with maximal expiration during the one minute rest.

Here are the results of 30 experiments (average figures). (p. 22)

This table brings out clearly the effect of regulated respiration with maximal expiration on gas exchange both during work and during rest.

During rest the  $\text{CO}_2$  output and oxygen intake are considerably greater when respiration is effected with maximal expiration than with ordinary expiration. Compared to ordinary breathing, the output of carbon dioxide and oxygen intake increases during respiration with maximal expiration by about 33 and 18 per cent respectively.

The above data of our experiments corroborate the inferences of Soviet physiologists (K. M. Bikov, M. E.

I.I. November 3, 1951							
Type of respiration	Min. of work	Ventilation $V_o$	% $\text{CO}_2$ in expired air	% $\text{O}_2$ intake	Total $\text{CO}_2$ output per 3' intake per 3'	Total $\text{O}_2$ intake per 3'	R.Q.
Ordinary	7						
	8	161,32	4,35	5,35	7018	8632	0,82
	9						
With maximal expiration	10						
	11	176,42	4,80	5,55	8468	9792	0,87
	12						
Ordinary	13						
	14	140,52	5,10	6,05	7166	8502	0,84
	15						
Ordinary	19						
	20	159,42	4,50	5,30	7174	8450	0,85
	21						
With maximal expiration	22						
	23	173,30	4,40	5,25	7626	9098	0,84
	24						
Ordinary	25						
	26	146,94	4,90	5,40	7183	7934	0,90
	27						

N.B. The figures for the amount of  $\text{CO}_2$  and  $\text{O}_2$  refer to 3 min. work

Type of respiration	3 minutes work							1 minute recovery						
	V. <sub>o</sub>	CO <sub>2</sub>	O <sub>2</sub>	CO <sub>2</sub>	O	R.Q.	V. <sub>o</sub>	CO <sub>2</sub>	O <sub>2</sub>	CO <sub>2</sub>	O	R.Q.		
Ordinary	177,6	3,38	4,17	6028	7170	0,81	55,94	3,96	3,70	2212	2060	1,06		
With max. expiration only during the 1 minute rest period	215,4	3,91	4,04	8344	8684	0,96	51,2	3,03	3,39	1591	1635	0,90		

Marshak and others) concerning the tremendous regulatory influence of the cerebral cortex on the functioning of internal organs, including the respiratory function both in rest and during physical work.

M. E. Marshak has proved that the connection between the cerebral cortex and the inborn proprioceptive respiratory reflexes is established after birth, when the conditioned reflex connections begin to form.

The stereotype, formed in the process of performing certain physical work, makes possible a better co-ordination between the motor action on the one hand and the process of external respiration and blood circulation on the other hand. This co-ordination also ensures a better oxygen saturation of the blood during physical work.

These conditioned reflex connections (stereotypes) are always formed in the process of training. Their fixation through exercise leads to a better oxygen saturation of the blood during physical work.

During the training of a new type of physical exercise, in the process of acquiring a new motor habit (stereotype), the preliminary instruction and the conscious mastering of regulated respiration with maximal expiration is especially important and leads to a better correlation to a quicker formation of a system of conditioned reflex connections.

Our investigations show that in this way, namely, through a correctly built-up stereotype with respiration with maximal expiration it is possible to improve the athlete's achievement.

Undoubtedly, respiration with maximal expiration should not be applied indiscriminately to all types of physical exercises and sports. It is necessary to coordinate properly the respiratory phases with the different phases of the movements. This, undoubtedly, requires further investigation with a view to ascertaining the most appropriate coordination of rhythm of respiration with the peculiarities of the movement made in various physical exercises and sports.

### GIVE TO THE SCHOLARSHIP FUND

## Book Reviews

**"The Principles of Exercise Therapy," by M. Dean Gardiner. (London: G. Bell and Sons, Ltd.; New York: The Macmillan Company, 1953. 260 pp. \$4.00.)**

Miss Gardiner concedes in her preface that there are a considerable number of male physiotherapists, but states that she will refer throughout the text to the physiotherapist as "her." Perhaps this feminine approach has something to do with the fact that Corrective Therapists will find the book of little interest. It is based on the Swedish system, a field which has been amply covered by earlier books. While the author lists the DeLorme-Watkins' text in her bibliography, the principles of progressive resistance exercise do not seem to have become part of her thinking. This is all the more surprising as she has a chapter specifically entitled "Technique of Strengthening Muscle." The statement that "When all the muscles are weak, power and function are improved" is incomprehensible to this reviewer. To say that "a reflex is, by definition, an afferent response to an efferent stimulus" seems a reversal of terms. The bald remark that "The Antagonists . . . relax" neglects consideration of the concept of cocontraction. In defining good posture as that which requires "the minimum of muscular effort and which is aesthetically pleasing," there is no recognition of the paradox that the extremely relaxed posture requires the least expenditure of energy but is usually adjudged very unaesthetic. The term muscle "power" is consistently used when it is evident that "strength" is meant. Since the book was written in England, a good many of the terms and abbreviations employed are unfamiliar to American readers. The arrangement of the text is often confusing, and is further complicated by errors and omissions in the too scanty index. A short bibliography completes a volume which offers little inducement for its addition to a corrective therapist's professional library.

PJR

**"A Summary Record of the Air Force Program to Utilize Effectively the Skills of the Physically Handicapped" (Washington, D. C.: Directorate of Civilian Personnel Headquarters, USAF).**

During World War II the Air Force recognized that the physically handicapped had much to offer a prospective employer. This slim pamphlet summarizes the Air Force's policy in employing the physically handicapped. Of particular interest are the five basic steps in its selective placement program and its frank recognition of the problems involved. Over half of the booklet is devoted to "success stories" of handicapped employees, which may well serve to inspire other individuals with like difficulties to overcome.

PJR

**"Needed Research in Health and Medical Care," by Cecil G. Sheps and Eugene E. Taylor. (Chapel Hill: The University of North Carolina Press, 1954. 216 pp. \$5.00.)**

In September, 1952, a group of forty-seven medical and social scientists met at Chapel Hill, N. C. to discuss needed research in health care. While recognizing the importance

of the traditional biophysical and biochemical approaches, these authorities were primarily interested in the bio-social field, that is, the concept that social forces affect health and disease processes and vice versa. Unlike the Josiah Macy, Jr. conference papers, the material in this book is not given verbatim. Some of it is drawn from pre-Seminar memoranda; most of it is in the form of summarized reports of what transpired. Each of the five sections, Purpose of Bio-Social Research, Fields of Bio-Social Research, Problems in Methodology, Special Organizational Problems and Issues and Conclusions, is followed by a bibliography. As might be expected at the first of such meetings, the conferees found themselves unable to agree on many subjects. Even such terms as "prevention" in medical care and "health" were left undefined. The first conference could not be expected to do more than to scratch the surface of this extremely complex problem. Future seminars will prove more profitable in that they will need to spend less time wrestling with basic concepts and more attention can be given to devising means of implementing the ideas which are advanced. Nevertheless, some very interesting and thought-provoking material is reported. A memorandum on the patient-doctor relationship prepared by the Department of Sociology and Anthropology, Michigan State College, is stimulating. Dr. John Gillin's depiction of a certain large mental hospital as a learning experience but one which does not encourage the kind of learning that is necessary and useful on the outside will strike a responsive chord with many therapists. When this study is completed it should be circulated to the personnel of every N.P. hospital in the country. It is to be hoped that future seminars will follow regularly.

PJR

"Shock and Circulatory Homeostasis," Harold D. Green, Editor, *Transactions of the Third Conference* (New York: The Josiah Macy, Jr. Foundation, 1954, 230 pp. \$3.50).

This Conference is divided into three sections. In "Experiences With Shock in the Korean Theater," Howard presents "the thesis that the responses of man to all magnitudes of injury are similar, and that moderate and severe injuries produce the same response but different clinical pictures, because, in some cases, the injury is out of proportion to the patient's ability to compensate." Burton comments that this brings up the fundamental point of whether the body "hunts" in the sense that control mechanisms in physics do. The balance of the discussion, however, deals primarily with questions of anaesthesia and blood transfusion. "Reflex Factors in the Regulation of the Circulation" attacks the problem of the circulatory and respiratory reflexes caused by the injection of chemical compounds. Students of the physiology of exercise will be especially interested in the discussion as to whether the Bainbridge reflex actually exists. The problem is rather technical and the difficulty of determining the actual relationship between receptors and muscular elements is emphasized. "Functional Properties of Blood Vessels" raises the difficult questions of the mechanical and physical analysis of blood vessels. Alexander expresses the belief that the elastic properties of the vascular bed may have something to do with the blood volume that seems to disappear in shock. Liljestrand describes the regulation of systemic arterial blood pressure during work and the blood flow through the lungs. This is followed by talk of pressure flow relations, led by Folkow. Whether the verbatim report is the best manner of presenting such conferences is a matter of some question. Certainly the material could be tightened and perhaps clarified if written in the orthodox manner. Nevertheless, to read such reports gives one the impression of having been in touch with some of the leading authorities in the field, and that has much to commend it.

PJR

"Weight Lifting and Progressive Resistance Exercise," by Jim Murray (New York: A. S. Barnes & Co., 1954, 95 pp. \$1.75).

Jim Murray, Managing Editor of *Strength & Health*, has produced an excellent introduction to weight training, one remarkable in its field for its absence of fantastic

claims for the benefits of this activity. After a brief introduction, basic progressive resistance exercises are described. These are essentially the ones which composed the old Milo course with which many of us became familiar thirty years or so ago. This is followed by a section on advanced exercises for those who wish further development of a particular part of the body. Dr. Rathbone, whose *Corrective Physical Education* was recently reviewed, will surely shudder at the description of "sit ups" done sitting on a stool placed on an incline board! A discussion of weight training for women is included in this section. A chapter on competitive weight lifting gives the rules governing the three Olympic lifts and training hints for those wishing to practice them. A few pages are devoted to special remedial exercise, with the warning that it should be practiced only under the direction of a doctor. In this connection it might be noted that many doctors and specialists in correctives will not agree with the statement that abdominal exercises are of value in the prevention of hernia. A glossary and brief bibliography complete the text. The book is profusely illustrated, most of the photography being quite good. The beginner in weight training will find this a handy and useful manual.

PJR

"The Allergic Child—A Help and Guide to Parents," by Harry Swartz, M.D. (Coward-McCann, 1954. \$3.95).

It is difficult to understand what parents will buy this book and read it with pleasure and profit. Much of it is written so wordily and technically that it seems questionable that the average parent would gain from it much understanding of the theories of allergy and its manifestations. Particularly debatable is the material included in the fifty-page chapter on "Allergic Conditions of Childhood" which lists under their medical names such conditions as ophthalmic migraine, ophthalmoplegic migraine, facioplegic migraine, etc. Many physicians would not agree in so all-inclusive a list as manifestations of allergy, nor, for instance, would they agree with such statements as occur on page 116 that extrasystoles are—"not infrequently—it appears, due to bacterial allergy initiated by bacteria in a focus of infection." It would seem that if the author gives this much information about extrasystoles he should go further and state that extrasystoles without accompanying other signs or symptoms are not usually considered of clinical importance by most cardiologists. One general criticism that can be made of a "popular" book of the type of "The Allergic Child" is that the author does not cite his references in support of his theories, so that the reader has no way of determining how well established they are.

Very good and perhaps worth the price of the book is the appendix, which lists general distribution of individual foods, the composition of compound and proprietary foods, useful foods for the allergic, drugs which are commonly offenders for the allergic child, and instructions for the preparation of a dust-free room. This appendix, with perhaps a thirty-page general article setting forth the author's thesis that an allergic child should receive adequate early treatment, would probably prove a much more effective and useful handbook for parents of an allergic child than this book in its present form.

KTC

"180 Games for One Player," by J. B. Pick (New York: Philosophical Library, 1954. 137 pp. \$3.75).

This is just what the title proclaims it to be: games which a person can play by himself. Nearly half of the text is given over to descriptions of various forms of Patience; the rest describes such activities as various methods of playing bounce ball, string games, toy soldiers, tiddlywinks, etc. It will be of use principally to those faced with the problem of keeping a lone child amused.

PJR

"Father Relations of War-Born Children," by Lois Meek Stolz (Stanford, Calif.: Stanford Univ. Press, 1954, 365 pp. \$4.00).

Dr. Stolz and the group of research workers under her direction have amassed a wealth of data that seems as-

sured of a permanent place in our socio-economic literature.

The problems of the returning veteran and the children whom he has heretofore seen only in photographs are investigated in all areas and made startlingly clear.

The bulk of the study is based on a comparison of 19 war-separated families and a like number of families in which there had been no separation of the father from the group.

Detailed measurements of behavior, attitudes and comparisons will be of special interest to the psychologist. Included in the text is a case study of one of the 19 (war-separated) families in which a detailed account is given of the various stresses and subsequent adjustments made by this sample group.

The reviewer, not gainsaying the value of this contribution, feels that the inclusion of more case study material would have afforded a needed change in tempo from the voluminous statistical data.

IF

**"How to Help People," by Rudolph M. Wittenberg (New York: The Association Press, 1953, 64 pp., \$1.00).**

A small but succinct volume embodying all the value of the parent volume of which it is a condensation.

The original, titled "So You Want to Help People," is now in its fourth printing and by reason of its undiminished value this handbook should approximate the original in popularity.

The author presents straightforwardly his conviction that relationship is the dynamic factor in any and all group endeavors.

Notable in the reviewer's opinion, is the section dedicated to the needs of group leaders. The author stresses here a thorough self-search and evaluation and suggests methods by which the needs of leader and group may effectively be served.

The material presented is applicable to all who work with groups but is definitely oriented toward work with teen-age and adolescent groups and as such should find many interested readers in these fields.

IF

**"Educating the Sub-Normal Child," by Frances Lloyd (New York: Philosophical Library, Inc. 1953, 144 pp. \$3.75).**

Well written and with an unusual warmth of feeling, Miss Lloyd's book covers the educational problem of the mentally handicapped child with particular reference to her own Junior School.

The author believes strongly in the value of special school treatment in helping these children develop confidence, independence and self respect.

Material concerning the organization, curriculum and aims of the school is presented and a large section is devoted to the maladjusted sub-normal child.

Miss Lloyd emphasizes the need for developing personality and social relationships before actual teaching is considered and discusses the importance of an environment of controlled freedom.

The reader will find the frequent use of case history material and charts of great interest in illustrating the relationship of emotion and intelligence.

IF

**"Reach for the Sky," by Paul Brickhill (New York: W. W. Norton & Co.).**

This is the biography of Douglas Bader, "the best fighter leader and tactician of World War II and one of the best pilots," as told by Paul Brickhill who was himself shot down by enemy fire over the Mareth Line in Tunisia in 1943. His own experience has enabled him to depict very realistically the training of Douglas Bader in overcoming the handicap of a double amputation and the more important triumph of accomplishing a completely successful life despite his serious disability.

Mr. Bader has been employed by the Shell Petroleum Company since 1946. His work takes him by air all over the world and he never misses an opportunity to inspire other amputees to walk without canes or crutches.

This exciting volume should furnish the reader not only stimulating hours of reading but help to build the type of philosophy that all therapists should be able to furnish the handicapped patient.

This philosophy is well expressed by Mr. Bader when talking with the father of a lad whom he visited in Chicago. When the father remarks, "The boy doesn't realize how serious it is yet," Mr. Bader replied, "That's the one thing he must never realize. You've got to make him feel this is another game he's got to learn, not something that will cripple him. Once you frighten him with it he's beaten."

EMS

**"Social Science in Medicine," by Leo W. Simmons and Harold G. Wolff (New York: The Russell Sage Foundation, 1954, 254 pp. \$3.50).**

A carefully constructed, thought-provoking volume for use and guidance in medicine and the social sciences.

The individual is considered dynamically in these important aspects; as a single organism, a group member and as an individual functioning in his culture.

The reader is reminded that the sociological factor as an intervening variable in disease is not a new concept but has necessarily been slow in developing by reason of the late establishment of the social sciences.

The authors have documented the closely forged links that connect stress and disease in a concise and informative chapter that includes both broad and specific examples of the authors' premise.

Hospital environment and practice are dealt with in another chapter from the standpoint of social science and should be the source of important information for workers in the medical as well as social fields of endeavor. Special emphasis is placed upon attitude of hospital personnel and their profound effect on patient treatment and morale.

The reader is impressed by the authors' willingness to admit the fact a socio-medical alliance cannot supply all the answers to the problem. The process must be regarded in terms of long-term research, each solution giving rise to further problems which in turn will need to be subjected to further refinement and study.

IF

**"A Synthesis of Human Behavior," by Joseph C. Solomon (Grune & Stratton, New York, 1954, 265 pp. \$5.50).**

Dr. Solomon writes a warm, humanistic, systematic explanation of human trait and personality development from birth to death. Much of the book is concerned with correlating traits in the developing organism with its instinctual and environmental influences. This system, with its progression through oral, anal, phallic and genital phases will be familiar to those acquainted with dynamic psychiatry. Throughout the book the author interweaves the concepts of perceptual thinking as versus conceptual thinking. He submits that the newborn starts learning by the former, and that maturation proceeds as the organism learns to think in conceptual terms. Throughout development conceptual thinking leads toward mature traits and satisfying life adjustments. Traumata may cause a reversal to secondary perceptual thinking even after some conceptual thinking has been attained. Dr. Solomon also develops the concepts of primary integration and primary autonomy which become the heritage of the infant with a fortunate environment, allowing him to develop direct mastery. Later in life, where adjustments have been tenuous and direct mastery not gained, the individual is likely to develop a secondary autonomy, based on shaky defenses, in the attempt to achieve an equilibrium.

RVF

## Chapter Activities

### Eastern States Chapter

The Eastern States Chapter and the N. Y. Chapter of the AART held a joint Fall conference at the Bronx V.A. Hospital on Nov. 20, 1954. Messrs. Sam Boruchov and Earl Frost planned the program which included registration, a tour of the PMR Service, respective chapter meetings and lunch followed by a welcoming address by Dr. John Hood, Manager of the hospital and a panel discussion on the subject, "The Effects of Public Law 565 on the Training, Education and Expansion of the Para-medical Group." Dr. Arthur Abramson acted as moderator for the panel which included Mr. William Spinelli, Supervisor of County Services, Division of Vocational Rehabilitation, New York State Education Department; Mr. Adrian Levy, Regional Representative, U.S. Office of Vocational Rehabilitation; Dr. A. Thompson, Professor of Counseling Psychology, Columbia University; Dr. S. Needlebaum, Vocational Psychologist, Northport V.A. Hospital; Mr. James Burrow, Past President, AART, and Mr. Louis Mantovano, President, Association for Physical and Mental Rehabilitation. An interested audience of about 150 persons attended and participated in the meeting.

### Western New York

An organizational meeting for the purpose of establishing a chapter in upstate New York was held on Oct. 1. Warren Landon was elected president pro tem and it was voted to undertake action designed to obtain a separate charter for this area.

## News and Comments

### ADMIRAL BOONE RETIRES

The retirement of Vice Admiral Joel T. Boone (M.C.), U.S. Navy, Rtd., as Chief Medical Director of the Veterans Administration, was announced Feb. 2 by Harvey V. Higley, Administrator of Veterans Affairs.

At the same time, Mr. Higley said Dr. William S. Middleton, Dean of the University of Wisconsin Medical School since 1935, would succeed Admiral Boone effective March 1, 1955.

The position of Chief Medical Director in the VA entails responsibility for conduct of the biggest medical program in the United States. The VA presently is operating 172 hospitals which care for nearly a half-million veterans-patients each year; provides daily domiciliary care for nearly 17,000 veterans, and operates 105 clinics serving more than 140,000 veterans each month.

Admiral Boone, who has headed VA's vast medical program since March 1, 1951, last June informed Mr. Higley of his desire to retire on or before the expiration of his four-year statutory term for reasons of health, and because of his desire to retire from public service to which he has devoted nearly 41 years of his life.

Dr. Middleton, an overseas veteran of both World Wars, has been associated with the veterans medical program in a variety of part-time consultative capacities dating back to 1922 when he served the United States Veterans Bureau as an attending specialist in tuberculosis.

He was one of the original members of the VA Special Medical Advisory Group established by law soon after World War II to advise the VA Administrator and Chief Medical Director in regard to the care and treatment of disabled veterans. It was this group that was instrumental in estab-

lishing the association between the VA and leading medical schools of the nation. At the present time, Dr. Middleton is a member of the national VA medical Advisory Committee on Education, and chairman of the Dean's Committee affiliated with the Madison, Wisconsin, VA Hospital.

Administrator Higley praised Admiral Boone's four-year stewardship of the VA medical program as "outstanding" and as being "of the utmost value to the nation and its sick and disabled veterans." The VA head said the agency was fortunate in securing the services of Dr. Middleton, whom he described as "exceptionally well qualified to provide the kind of leadership that will insure a continuation of top quality medical care for eligible veterans."

Dr. Middleton, born in Norristown, Pennsylvania, January 7, 1890, received his medical degree from the University of Pennsylvania in 1911. Following his internship at Philadelphia General Hospital, he joined the staff of the University of Wisconsin Medical School in 1912 as an instructor of clinical medicine. He became an assistant professor in 1915, an associate professor in 1925, and Dean of the Medical School in 1935. He was the Galens visiting professor of medicine at the University of Michigan Medical School in 1940, and delivered the Ernest A. Sommer Memorial lectures at the University of Oregon Medical School in 1949, and the David J. Davis lectures at the University of Illinois in 1947.

He was on active duty during World War I with the U.S. Army Medical Officers Reserve Corps from May 24, 1917, to March 4, 1919, serving with both the British and American Expeditionary Forces. He served with the U.S. Army Medical Corps during World War II from April 1942 to September 1945, and was the chief consultant for medicine in the European Theater of Operations. He was discharged as a Colonel, a rank he still holds in an honorary capacity with the U.S. Army Reserve. At the present time he is a member of the advisory council to the Assistant Secretary of Defense for Health and Medical. For his war service he was awarded the Distinguished Service Medal, the Legion of Merit, and the French Croix de Guerre with Palm.

Dr. Middleton was given the Wisconsin State Medical Society's Council award in 1939, and holds an Alumni Award of Merit from the University of Pennsylvania. He is a past-president of the American College of Physicians, the Central Society for Clinical Research, and the American Association History of Medicine. He is an Honorary Fellow of the Royal Society of Medicine, and the Royal College of Physicians (London). He holds memberships in the American Medical Association; the American Association for the Advancement of Science; the Association of American Physicians; the American Society for Clinical Investigation; the American Clinical and Climatological Association; the Society of U.S. Medical Consultants; the Society for Experimental Biology and Medicine; the Wisconsin Academy of Sciences, Arts and Letters, and the Milwaukee Academy of Medicine.

He is a member of Phi Beta Kappa and the American Legion, and has contributed many articles to medical journals on the subjects of clinical medicine, clinical research, and history of medicine. Dr. Middleton is married, and has been residing at 2114 Adams Street in Madison, Wisconsin.

Admiral Boone began his distinguished public service career in April 1914 when he was appointed Lieutenant (j.g.) in the Medical Corps of the U.S. Naval Reserve. He was transferred to the Regular Navy in May 1915.

Among the many decorations Admiral Boone has received from both the United States and foreign governments are the Congressional Medal of Honor, the Distinguished Service Cross, the Silver Star medal with five oak leaf clusters, the Bronze Star medal with Combat "V" the Purple Heart with two oak leaf clusters, the Croix de Guerre with two Palms, Officer of the Legion of Honor (France), the Italian War Cross, and the French Gold Medal of Honor.

He served as the White House physician for Presidents Harding, Coolidge and Hoover. In World War II he was Fleet Medical Officer of the Third Fleet; was the Naval Medical Corps Representative at the Japanese surrender ceremonies on the battleship Missouri, and was one of three officers selected to liberate Allied prisoners of war in Japan.

## RESOLUTION ON ADAPTED PHYSICAL EDUCATION

The following is the full text of a resolution adopted unanimously on Wednesday, December 8, by the 150 participants of the three-day Adapted Physical Education Institute, which was sponsored jointly by the New York University School of Education and the Association for Physical and Mental Rehabilitation. Participants included specialists in medicine, psychiatry, physiatry, physiology, and physical education from all sections of the country. The Institute was conducted from December 6 to 8 in the Waverly auditorium at NYU's Washington Square Center, New York City.

Since the members of the Adapted Physical Education Institute believe that children with handicaps will benefit from a physical education program which is specially adapted to their needs,

And because the Institute recognizes that these special programs are not available to many handicapped children, it therefore proposes that the following basic action be taken to promote such programs.

That a model program of adapted physical education be conducted for a period of one year in order to demonstrate the values, procedures, and problems connected with such a program. It is proposed that the following aspects be included in planning this project:

1. That a survey of the schools be conducted to determine the number of handicapped children and the nature of their handicaps.
2. That certain schools be selected for this project where there are sufficient numbers of handicapped children.
3. That a program of in-service training in adapted physical education be conducted for the physical education teachers who will carry out these programs in the designated schools.
4. That the adapted physical education program to be carried on in these schools be planned by a group of professionally competent leaders who will be selected for this purpose.
5. That this program be carried out for a period of one year during which time it will be continuously evaluated.
6. That at the end of the year's time, a complete report of evaluation be prepared and given to the participating and other interested agencies.

To follow up on the above proposals, we recommend that:

1. A planning committee be appointed and empowered to carry out these steps.
2. That we explore all possible sources of funds and support for this project.

### 56,000 VOCATIONALLY REHABILITATED IN 1954

Nearly 56,000 handicapped men and women were "restored to useful and productive lives" during 1954 through the Federal-state program for vocational rehabilitation, according to a report rendered by Miss Mary E. Switzer, director of the Office of Vocational Rehabilitation, United States Department of Health, Education and Welfare. Speaking before the vocational rehabilitation conference of the National Social Welfare Assembly in New York on Jan. 21, Miss Switzer noted that these rehabilitated persons were now paying Federal income taxes and many had changed their status from the position of tax consumer to that of taxpayer.

### CORRECTIVE THERAPY VACANCY

A Corrective Therapist GS-7 vacancy exists at the Veterans Administration Center, Wadsworth, Kansas. The Physical Medicine Rehabilitation Service at this Center, which is located approximately 25 miles from Kansas City, has a consultation and teaching affiliation with the University of Kansas School of Medicine. The Corrective Therapy Section has an active program with its services being utilized in general medicine and surgery, neuropsychiatry and a domiciliary. Applicants may utilize all regular channels of information to fill this need.

## ROLE OF VETERAN MEDICAL PROGRAMS DESCRIBED

Medical programs for veterans was one of the topics discussed during the Fifth International Congress on Mental Health in Toronto held during the past summer. Dr. Harvey Tompkins, Chief, Psychiatry and Neurology Services, Veterans Administration, Washington, D. C. was coordinator of the discussion which developed the following points as reported by *Mental Hospitals*:

1. Historically, states and nations have expressed their gratitude to the veterans of their armed forces by caring for the disabled.
2. The particular planning and implementation of such assistance, including its extent, is for determination by the individual governments. However, the success of any program will depend on:
  - a. Such aid being given without threatening personal integrity and dignity. The veteran has a "right" to ask for and receive such assistance.
  - b. Avoidance of first and second class citizenship; that is, veteran and non-veteran schisms within the citizenry. The veteran is a citizen who, instead of serving his country in other ways, during a period of emergency chose or was chosen to serve as a citizen soldier.
  - c. Recognition that monetary awards do not suffice. In addition there must be opportunity to secure adequate treatment and rehabilitation.
3. Veteran medical programs supported and administered by government bodies, in whole or in part, provide treatment facilities but not a total health program. The veteran must be ill or disabled to be eligible for care. Therefore, the prime responsibility of veteran medical programs is in the treatment and rehabilitation of the already disabled. Prevention is involved but only in a relative manner; secondary prevention is provided through attempts to arrest the course of the disease and/or avoid more serious complications. Accordingly,

the promotion and maintenance of the health of veterans are dependent on other elements and agencies in the community, as are the rest of the citizens.

4. Despite these inherent limited responsibilities, veteran medical programs can and do contribute to the total health resources of the nation and also provide more effective treatment of veterans by:

a. Coordinating their efforts with those of other health groups, agencies, schools and universities, national and local. This can be done particularly well in the areas of training and research. This can be accomplished without compromising particular responsibilities or jeopardizing autonomy of administration.

b. Providing opportunities for all interested scientists and clinicians to participate in veteran medical programs other than on a full-time or career type employment basis. This is a most productive method of cross-fertilizing veteran medical programs and the rest of the country's medical resources.

## NURSES LEARN REHAB TECHNIQUES AT NYU-BELLEVUE

The NYU-Bellevue Medical Center is offering three-week seminars in rehabilitation for nurses which include training in three phases of this specialty: skills and methods of functional activities, rehabilitation of severe disabilities and clinical experience. The course was started on Oct. 25 and subsequent seminars will begin Nov. 12, Jan. 10 and April 4.

The course is designed for registered nurses at Bellevue and in the field of Public Health. The total rehabilitation of the orthopedic, medical, surgical and neurological patient is discussed with emphasis on the nursing aspects and implications of self-care activities, ambulation, and elevation. Instructors for the course include Dr. Howard Rusk, Dr. George Deaver, and Dr. Donald Covalt of the medical staff; Mrs. Edith Buchwald Lawton, R.P.T. and three members of the nursing staff, Miss Mildren Spidell, Miss Alice Morrison and Mrs. Margaret Dabrin.

Association for Physical  
and Mental Rehabilitation

## MEMBERSHIP APPLICATION

Mail to Charles Willhite  
4732 Canfield  
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Enclosed please find (check one)

\$10.00 for my Active Membership  
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Signature

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Position Title

Active

Location

Education

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(Major)

(Degrees)

(Degree with major in Physical Education required)

Training and/or experience in Physical and/or Medical Rehabilitation includes:—  
(One year under the direct supervision of a Medical Doctor required)

### Professional

I received my ..... degree or certificate from .....  
(cross out one)

(name of college, university, institution)

I am .....  
(List your profession related to rehabilitation, such as physician, nurse, clinical psychologist, speech therapist, physical educator, sports technician, social worker, vocational advisor, etc.)

Location

I have a special interest in rehabilitation because .....

### Associate

I am employed at .....  
(list your position)

(location)

I have a special interest in rehabilitation because .....

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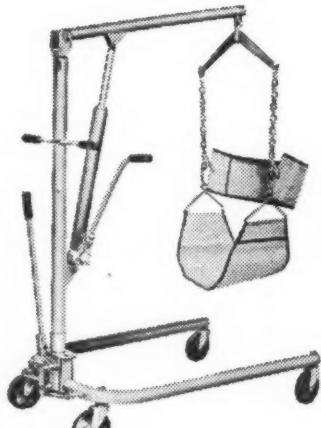
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## SELECTED, ANNOTATED BIBLIOGRAPHY OF CURRENT LITERATURE-1954

Editor's note. All references in this bibliography have been selected from the BULLETIN OF CURRENT LITERATURE, published by the National Society for Crippled Children and Adults, 11 So. LaSalle St., Chicago 3, Ill. An annual subscription to this publication may be purchased for one dollar (\$1.00). It is compiled by the Library of the Easter Seal Society and contains a very complete review of the literature which the progressive worker with the handicapped should have at his disposal.

### ACCIDENTS

Schulzinger, Morris S. (340 Reading Rd., Cincinnati 2, Ohio)

The accident syndrome; a clinical approach. *Natl. Safety News*. Oct., 1954. 70:4:116-117, 219-224.

"In his private practice in Cincinnati during the past 25 years, Dr. Schulzinger has handled 35,000 accident cases and this experience forms the basis of the conclusions presented here. . . ." The study was not limited to industrial accidents; patients were of all social, economic and cultural levels; and accidents occurred in the home, at work, in public places, at schools, and on the road. Detailed analysis of the material yielded statistics on the influence of age, sex, season, type and frequency of anatomical distribution of injury. This article is limited to the more important findings and conclusions.

### AMPUTATION-EQUIPMENT-RESEARCH

Alldredge, Rufus H. (1538 Louisiana Ave., New Orleans 15, La.)

Prosthetics research and the amputation surgeon, by Rufus H. Alldredge and Eugene F. Murphy. *Artificial Limbs*. Sept., 1954. 1:3:4-46.

Gives a brief history of amputation surgery and the art of prosthetics, discusses wartime problems and new concepts in rehabilitation. The levels of amputation in both lower and upper extremities are discussed in regard to modern prosthetic replacement. Modern techniques and postoperative care, rehabilitation responsibilities and the broadening of medical education programs to include a knowledge of amputee rehabilitation are considered. The article is extensively illustrated and includes a bibliography of 100 items.

### AMPUTATION-OCCUPATIONAL THERAPY

Jones, Mary S.

Occupational therapy equipment for treatment of the lower limb. *Brit. J. Phys. Med.* Aug., 1954. 17:8:169-183.

A description of equipment in use in the workshops at Farnham Park Recuperative Home, England, giving an account of its use with various disabilities. Equipment includes a bicycle filing machine, bicycle saw, ankle rotator saw, foot power lathes, scroll saw, looms, and gardening tools.

## AMPUTATION—PHYSICAL THERAPY

Bryce, Margaret

Physical therapy after amputation; the treatment of the unilateral lower-extremity amputee. Madison, Wis., University of Wisconsin Pr., 1954. 93 p. illus.

A pocket-sized manual presenting essentials of therapeutic treatment and basic information on prostheses. Techniques of day-by-day exercise and the problems of balance and gait are explained and analyzed. Alternate blank pages have been provided for notetaking and variations in technique worked out by the practicing therapist. The amputee himself and those who assist in his care and treatment will also find the book helpful.

Available from University of Wisconsin Press, 811 State St., Madison 5, Wis., at \$1.50 a copy.

## BRACES

Von Werssowetz, Odon F. (P.O. Box 58, Gonzales Warm Springs Foundation, Gonzales, Texas)

Braces for the lower extremity in poliomyelitis. *Phys. Therapy Rev.* Sept., 1954. 34:9:437-443.

"A few basic principles of proper bracing of patients with lower extremity residual disabilities from poliomyelitis have been discussed. Special emphasis has been placed on proper evaluation of the need and type of braces to be prescribed. The use of offset hinges, especially at the hip, has been presented."—Summary.

## BRAIN INJURIES—PSYCHOLOGICAL TESTS

Yates, Aubrey J. (Inst. of Psychiatry, Maudsley Hosp., London, England)

The validity of some psychological tests of brain damage. *Psychological Bul.* July, 1954. 51:4:359-379.

Criteria determining the validity of tests are defined and various tests of brain damage are considered to see how far they fulfill the criteria. "It will be the purpose of this paper to show that most of the tests purporting to be measures of brain damage do not meet the conditions set out above and that, therefore, their validity either cannot be considered as established or cannot even be evaluated." 69 references.

## CEREBRAL PALSY

Hopkins, Thomas W.

Evaluation and education of the cerebral palsied child; New Jersey study, by Thomas W. Hopkins, Harry V. Bice, and Kathryn C. Colton; with a foreword by Winthrop Morgan Phelps. Washington, D. C., Internat'l. Council for Exceptional Children, 1954. 114 p. tabs., graphs.

## CHRONIC DISEASE—PROGRAMS

Planning and organizing for care of the chronic patient. *Modern Hospital*. Sept., 1954. 83:3:65-81.

Contents: The job of the community, Leonard A. Scheele. —Home for aged and chronically ill, Kingsbridge House, Bronx, N. Y. —Hospital unit for long-term patients, Dean W. Roberts. —They made the pattern fit the problem, Steele, Sandham and Steele, Architects. —Rehabilitation unit for the general hospital, H. Worley Kendell (and others). —Flexible nursing unit for chronic patients. —Diagnostic facility for outpatients, Louis M. Wolff. —Plan for a modern nursing home. (See also No. 1068.)

## COLLEGES AND UNIVERSITIES—ILLINOIS

Wheelchair students at University of Illinois know theirs is a sympathetic school. *Crippled Child*. Aug., 1954. 32:2:16-18.

Fast becoming nationally known for its special attention to handicapped young people, the University of Illinois has provided consultation service, planned transportation, pre-registering to get handicapped students into the most convenient classes, and parking space handy to every building. Its level campus offers natural advantages for wheelchair students.

## CONVALESCENCE—RECREATION

American Recreation Society. Hospital Recreation Section (1129 Vermont Ave., N.W., Washington 5, D.C.)

Basic concepts of hospital recreation. Washington, D.C., The Society, 1953. 26 p.

A report of a study of the prevailing concepts of recreation for the ill and disabled. Leading individuals in the medical and recreation professions were asked to provide data to serve as a basis for a generally acceptable statement of the concepts of hospital recreation. Major points listed for specific comment included a definition of recreation, application of the definition to recreation programs in hospitals, use of the medical prescription in relation to patient participation in the programs, and the function of the physician in determining activities to be included in a recreation program. Comments of participants are analyzed and summarized, with recommendations.

## DECUBITUS ULCER

Gardner, W. James (2020 E. 93rd St., Cleveland 6, Ohio)

The alternating pressure pad; an aid to the proper handling of decubitus ulcers, by W. James Gardner, Ruth M. Anderson, and Michael Lyden. *Arch. Phys. Med. and Rehab.* Sept., 1954. 35:9:578-580. Reprint.

A report of the results obtained from use of an alternating pressure pad with 100 consecutive cases, 38 of whom already had decubitus ulcers, and 62 who, without the pad, would have required frequent turning to prevent the appearance of ulcers. The pad is in effect a pneumatic mattress placed on top of the ordinary bed mattress. Its beneficial effect is due to alternate shifting of the areas of weight bearing, which prevents prolonged ischemia.

Also in this issue: The prevention and treatment of ducubiti; an editorial, p. 591-592.

## DRIVERS

Thompson, John W. (Motor Vehicle Dept., State of Wisconsin, Madison, Wis.)

Physical requirements of a driver. *Health Quart. Bul. Wis. State Board of Health.* Oct.-Nov.-Dec., 1954. 12:9:26-29.

Outlines the physical requirements which a good driver must possess and discusses the effect of physical handicap on driving ability. The author believes that persons with physical disability which may be compensated through corrective devices or vehicle equipment and who recognize their own limitations and drive accordingly are less of a traffic problem than the "normal" person with careless driving habits.

## EPILEPSY

Yahraes, Herbert

Epilepsy; the ghost is out of the closet. New York, Public Affairs Committee, 1954. 28 p. (Public Affairs pamphlet No. 98.)

A revised edition prepared with the assistance of William G. Lennox, M.D., H. Houston Merritt, M.D., Zira de Fries, M.D., and Harry Sands, Ph.D., of the United Epilepsy Association. It gives facts on the nature of the disease, conditions leading to seizures, characteristic symptoms, treatment, advice on education, marriage, and employment for epileptics, and aspects for prevention of the disease.

Available from Public Affairs Pamphlets, 22 E. 38th St., New York 16, N.Y., at 25c a copy.

## EPILEPSY-PSYCHOLOGICAL TESTS

Deutsch, Cynthia P. (Montefiore Hosp., Gunhill Rd., New York 67, N.Y.)

Differences among epileptics and between epileptics and nonepileptics in terms of some memory and learning variables. *Arch. Neurology and Psychiatry* Oct., 1953. 70:474-482. Reprint.

Report of a study of the memory function of epileptic patients as compared with each other and with nonepileptics. Subjects were patients in the epilepsy clinic of Montefiore Hospital; the control group was composed of patients in the surgical, orthopedic, and medical wards of the same hospital. Findings indi-

cated that both patients with idiopathic and symptomatic epilepsy show somewhat similar impairment in performance of memory and learning tasks. Though differences in the pattern of impairment between the two groups are evident, each group is more like the other than either is like the group of nonepileptics. Two new procedures testing tactual learning and complex auditory perceptual tasks appear to be useful in differentiating epileptics and nonepileptics.

#### EMPLOYMENT (INDUSTRIAL)—PLACEMENT

*Employment Security Review*. Sept., 1954. 21:9.

Entire issue devoted to the subject.

Contents: A decade of public recognition and effort, William P. McCahill. —Vocational rehabilitation; a decade in review and a look ahead, Mary E. Switzer. —Interagency cooperation helps disabled veterans, William O. Ilgenfritz. —Growing scope of programs for the handicapped, Edward L. Keenan. —Community teamwork encourages employment of the handicapped, Helen A. Speidel. —Services to the handicapped; 10 years of progress in Texas, Thomas R. Greening. —Through industrial therapy to self-sustaining jobs, R. K. Barnes, Jr. —Success through community participation, L. A. Daniel. —My most satisfying handicapped placement.

#### HANDICAPPED—EQUIPMENT

Barnett, Harry E. (116 S. Michigan Ave., Chicago 3, Ill.)

A simple hand grasp projector, by Harry E. Barnett and Meyer A. Perlstein. *Am. J. Phys. Med.* Oct., 1954. 33:5:313-314.

Describes the construction and uses of a simple and inexpensive apparatus which enables the handicapped person to reach, grasp, and manipulate various shaped objects beyond the reach of hand function. It has been found useful to both children and adults with limited lower extremity function, confined to bed or wheelchair. It requires relatively good voluntary control and muscle strength in the thumb, index and middle fingers and may not be useful in severe cases of arthritis or neuromuscular diseases.

Covalt, Donald A. (400 E. 34th St., New York 16, N. Y.)

Practical mechanical devices for use by disabled persons. *J. Am. Med. Assn.* Oct. 23, 1954. 156:8:758-759.

A discussion of some of the mechanical devices which have proved helpful in rendering disabled persons self-sufficient, the choice of materials, and the considerations in choosing the proper device to meet the individual's needs.

#### HEART DISEASE—EMPLOYMENT

Ylvisaker, Lauritz S. (Fidelity Mutual Life Ins. Co. Philadelphia 1, Pa.)

The cardiac in industry. *Am. Practitioner and Digest of Treatment*. May, 1954. 5:5:335-337. Reprint.

Case reports of four employees of the Fidelity Mutual Life Insurance Company who have various heart conditions and yet continue to present a normal employment record. These patients were presented on a television program given at the Meeting of the American College of Physicians, Atlantic City, April 14, 1953. Dr. Ylvisaker, medical director of the Company, describes the employee health program of his organization and emphasizes the necessity for an evaluation of present retirement policies which are economically and socially unsound for those able to continue working after 65.

#### HEMIPLEGIA

Posniak, Abraham O. (N. Y. Medical College, New York 49, N. Y.)

Rehabilitation of the hemiplegic amputee, by Abraham O. Posniak (and others). *J. Am. Med. Assn.* Aug. 21, 1954. 155:17:1463-1465.

Three case histories are given to demonstrate the feasibility of rehabilitation, in spite of severe combined disabilities of hemiplegia and amputation. A discussion of the factors influencing rehabilitation of the hemiplegic amputee is included.

## HEMIPLEGIA—BIBLIOGRAPHY

National Society for Crippled Children and Adults.

Selected references on hemiplegia, compiled by the Library, October, 1954. Chicago, The Soc., 1954. 7 p. Mimeo.

Lists 69 selected references which have previously been indexed and annotated in the *Bulletin on Current Literature*. References cover the general subject of hemiplegia, its diagnosis, equipment useful in rehabilitating the hemiplegic, medical treatment and nursing care, mental hygiene in hemiplegia, occupational and physical therapy, and articles on typing, writing and walking.

Single copies free from the Library, National Society for Crippled Children and Adults.

## HYDROTHERAPY

Campbell, James P.

Pool therapy. *Brit. J. Phys. Med.* Oct., 1954. 17:10:224-227.

Gives a brief historical sketch of pool therapy, describes its general effects, the use of heat, massage, and exercise, and the psychological benefits of this form of therapy.

## INTERNATIONAL SOCIETY FOR THE WELFARE OF CRIPPLES

International Society for the Welfare of Cripples (127 E. 52nd St., New York 22, N. Y.)

Facts about the . . . and its affiliated national organizations, prepared for the Sixth World Congress, The Hague, Netherlands, September 13-17, 1954. New York, The Soc., 1954. n.p. Planographed.

Outlines the organization and program activities of the International Society for the Welfare of Cripples and gives pertinent information on its affiliated national organizations, their aims and programs. Assembly members and national secretaries of the various organizations are listed.

## MULTIPLE SCLEROSIS

Scheinberg, Peritz (1431 N. Bayshore Dr., Miami 36, Fla.)

Cerebral circulation and metabolism in multiple sclerosis; correlative observations by electroencephalography and psychodiagnostic testing, by Peritz Scheinberg (and others). *A.M.A. Archives of Neurology and Psychiatry*. 70:260-267. Reprint.

"Cerebral blood flow and cerebral metabolism were measured by the nitrous oxide technique in 20 patients with multiple sclerosis in various stages of the disease, and electroencephalographic recording and Rorschach ink blot tests were performed on 12 of these patients. There was no change from normal in any of the measured cerebral metabolic functions or evidence that exacerbation of the disease affected the cerebral blood flow or metabolism, though the electroencephalogram was abnormal in all patients with exacerbation of the disease. It is felt that these studies cast doubt on hypotheses which incriminated vascular spasm or thrombosis as a mechanism responsible for the pathologic lesions of multiple sclerosis. Several explanations are offered for the observation that cerebral oxygen and glucose consumption are apparently unaffected by this disease.

"No correlations were observed among clinical findings, measured cerebral metabolic functions, electroencephalograms, and results of psychodiagnostic testing. The Rorschach ink blot test seemed to be much more sensitive in detecting the presence and extent of organic damage to the brain than the nitrous oxide technique or the electroencephalogram."—Summary and conclusions.

## MUSCULAR DYSTROPHY—BIOGRAPHY

Stocker, Joseph

All it takes is brains. *Today's Health*. Oct., 1954. 32:10:40-42, 44-45.

The heartening story of Homer D. Kind, "king" of California's weekly newspaper publishers, who though paralyzed completely from the neck down, lives a full life. Daily he goes to his office, handles much of the detail work, travels frequently, and crusades for community improvement.

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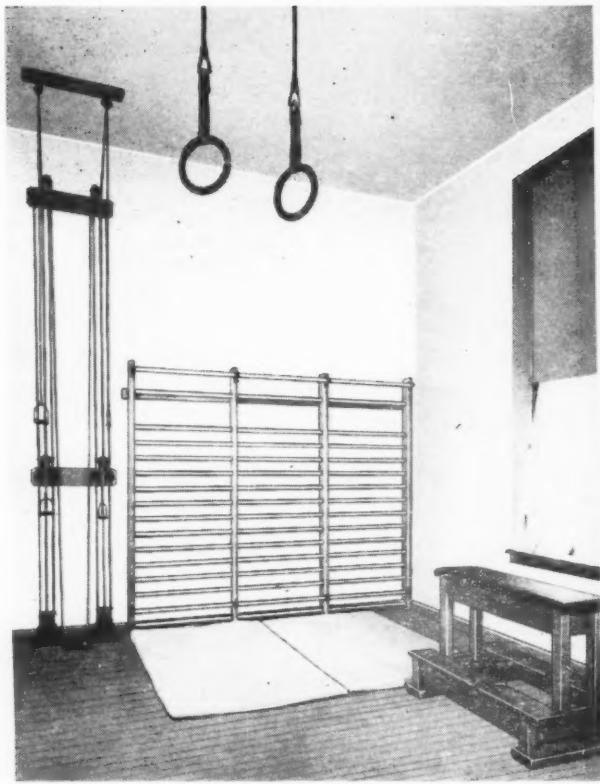
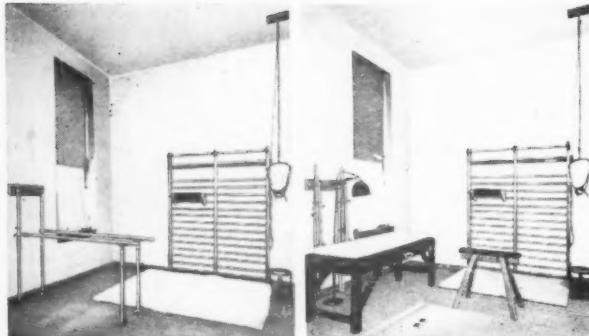
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